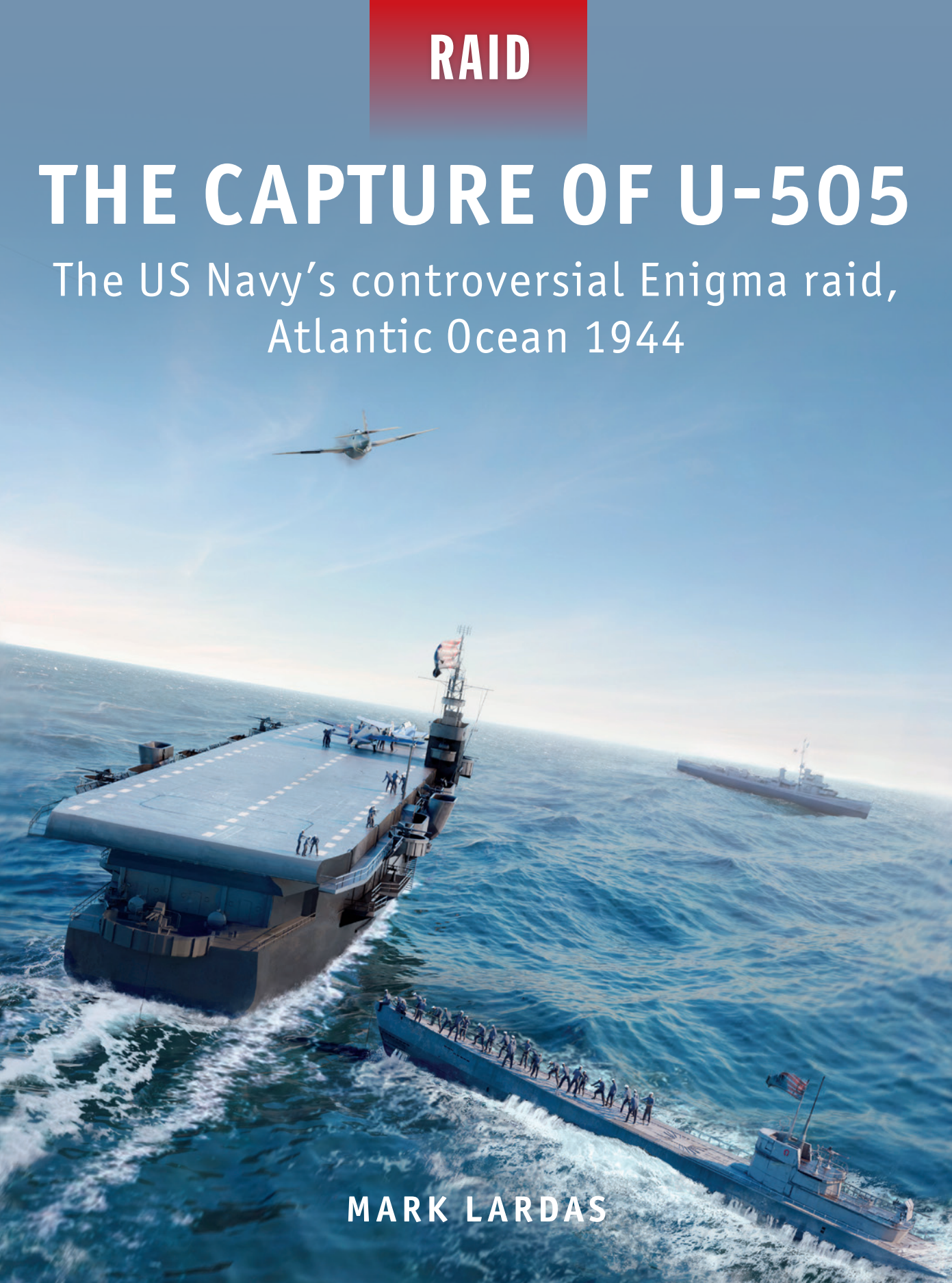
RAID

THE CAPTURE OF U-505

The US Navy's controversial Enigma raid, Atlantic Ocean 1944



MARK LARDAS

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INTRODUCTION

Chance favors only the prepared mind.

Louis Pasteur

It had been a frustrating few weeks for the men of Task Group 22.3. The Task Group, made up of Casablanca-class escort carrier *Guadalcanal* and five destroyer escorts left Norfolk, Virginia on May 15, 1944. Its task was to find and sink German U-boats. On two previous patrols *Guadalcanal* attacked four U-boats, sinking three and forcing a fourth to abort its war patrol and crawl back to France, crippled. So far, after 20 days at sea, it had found nothing.

It was not though for lack of trying or lack of preparation. By June 1944, TG 22.3 was a well-practiced team. Four of the Task Group's destroyer escorts, Edsall-class *Pillsbury*, *Pope*, *Flaherty*, and *Chatelain*, were veterans of TG 22.3's successful second patrol. All four participated in sinking U-515 on that patrol. Buckley-class *Jenks* was new to the group, but a veteran of the Battle of the Atlantic, having participated in two crossings of the Atlantic escorting convoys. *Guadalcanal*'s air group, VC-8, was new to *Guadalcanal*, but not new to the war. Its commander, Lt N. D. Hodson, had flown at Midway two years earlier, and won two Distinguished Flying Crosses while flying off *Card* and its U-boat hunting team in 1943.

The Task Group was ready – and eager. They had even practiced a cockamamie scheme Task Group commander Captain Daniel V. Gallery had thought up: to capture a U-boat and bring it back to port, intact. The group's only problem was it is hard to sink, much less capture, a U-boat if you cannot find one. Ever since it had left Norfolk, the U-boats had made themselves scarce. Neither the *Guadalcanal*'s aircraft nor its destroyer escorts had found a U-boat in 20 days. Not a sighting by an aircraft despite round-the-clock flights, not a ping from a destroyer escort's sonar.

Making things more frustrating, Captain Dan (as his men called him) knew there was a U-boat nearby. COMINCH reported that a U-boat,

homeward bound for France after a fruitless patrol off Africa's Gold Coast, was passing through TG 22.3's patrol area off the Cape Verde Islands. Gallery treasured those reports, he treated the daily COMINCH reports as Bible truth.

After the war, Gallery related: "There was a Commander Ken Knowles in Washington who ran this submarine estimate thing. He was just a soothsayer. He could put himself in the position of a German skipper and just figure out what the guy was going to do and where he would go. He was absolutely uncanny in his predictions."

Lt N. D. Hodson won a Distinguished Flying Cross for participating in this attack on U-66 and U-117 in August 1943, while flying from USS *Card*. Ten months later he commanded VC-8, the air unit aboard USS *Guadalcanal*. (USNHHC)

In reality, Knowles and his team were not reading German skippers' minds. They were reading their mail. The Allies had broken the Enigma code used by the Kriegsmarine's U-boats in 1943, and had been deciphering U-boat communications since then. Those communications frequently included position reports and movement orders. By 1944 Knowles' group had turned this intelligence into a daily COMINCH report. (It was so-called because they were sent daily in the name of the Commander-in-Chief – COMINCH – of the Tenth Fleet, responsible for coordinating all antisubmarine activity.) Knowles made Gallery a believer during Gallery's first war patrol when a COMINCH report led to Gallery catching three U-boats in a rendezvous on *Guadalcanal*'s first war patrol.

On the group's second war patrol, intelligence led to the detection and destruction of two more U-boats. One, U-515, was trapped underwater and badly damaged. Its captain, U-boat ace Werner Henke, had blown the submarine's tanks, surfacing to allow his crew to abandon it before it sank.

Yet the submarine TG 22.3 sought on this patrol remained elusive. There was a lot of ocean, and the Task Group had vainly searched for its steel Moby Dick for a week. Fuel was critically low, so Gallery reluctantly abandoned the search and headed to Casablanca to refuel.

Gallery's quarry was U-505, a Type IXC U-boat on its twelfth war patrol. It was a storied member of the Kriegsmarine's U-boat fleet. In 1942, under its first captain, Axel-Olaf Loewe, it sank eight ships for 37, 832 tons during its first three war patrols. Its second captain, Peter Zschech, sank but one ship of 7,173 tons, that on its fourth war patrol, which ended December 12, 1942. Luck fled U-505 in 1943. It managed no kills in six more patrols, and its captain committed suicide in November, while U-505 was being depth charged. Its third captain, Harald Lange, had restored morale, but many in its crew were still half-convinced U-505 was unlucky.

Its twelfth patrol failed to dispel that belief. U-505 had spent over two months patrolling the waters between Freetown in today's Sierra Leone and Grand-Bassam on the Ivory Coast. These waters, off the southern coast of Africa's bulge should have been rich with shipping, but there were no convoys in that region. Ships sailed independently to Freetown where they would join an SL (Sierra Leone) convoy to Britain. Lange and U-505 found it strangely bereft of merchant ships.

The absence of convoys was one reason U-505 was sent to this distant location, another was that it was a backwater. There were few aircraft and even fewer warships patrolling those waters, and a U-boat's maximum danger came in the passage to and from that area. Coastal Command covered the approaches to and from the Biscay ports from which U-boats operated and around Gibraltar like a fine-mesh net. The US operated heavy air patrols off Casablanca in Morocco, and had escort carrier groups in the waters between Gibraltar and the southeastern American Atlantic Coast.

Lange spotted just one ship during his patrol, but that quarry eluded him. The problem with patrolling in a backwater was there were few ships there. Lange's crew counted their blessings – they may not have sunk any ships, but they had not been attacked either. It had been a hot, uncomfortable patrol, but they were now on their way home. Unknown to Lange and his men, they had slipped past the patrolling TG 22.3 search undetected while voyaging homeward.

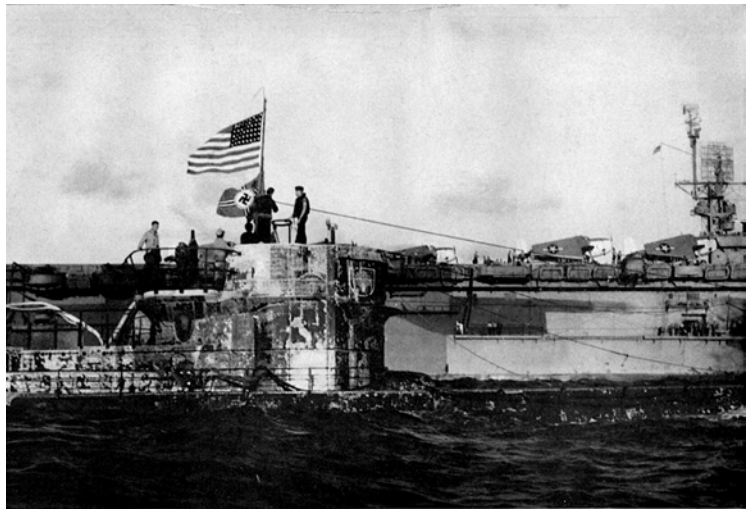
At 1116hrs (GMT) the destroyer escort *Chatelain*'s sonar operator reported a possible submerged contact. By chance TG 22.3's path to Casablanca took it over that of U-505 running submerged during daylight hours. Scooting to refuel and resume its patrol, the Task Group overran the slow-moving submerged U-boat. Investigation confirmed contact. Four minutes later, *Chatelain* attacked.

U-515 had been trapped by TG 22.3, low on air and battery power. Its captain surfaced to allow the crew to escape. They are seen here scattered on the water before rescue. Gallery believed he could have captured U-515 if he had been ready. (USNHHC)

It was just past noon aboard U-505, which was on Central European Time, an hour earlier than aboard *Chatelain*. Suddenly, the peaceful passage was interrupted when the U-boat's hydrophone operator reported a sound contact. Lange brought U-505 to periscope depth. He swept the sea with the periscope. "Destroyer," he shouted. He ordered an acoustic torpedo, a weapon designed as a destroyer killer, fired at his pursuer. Then everything began happening at once.

What happened next was chance and how those affected by chance reacted. One of the most audacious actions of World War II ended with a United States Navy hunter-killer group in possession of an intact U-boat. It was an action whose consequences would reverberate for the rest of the war.

It was also a meticulously prepared raid. What made it more remarkable was that it was not the traditional raid against a fixed target – the destruction of the Normandie Lock or the capture of Pegasus Bridge gave those conducting the raid the luxury of formal planning against a known target. In many of these types of raids, the participants were offered opportunities to practice their strike.



Gallery was ready the next time an opportunity presented itself. In a daring raid, Gallery's Task Group 22.3 captured U-505, a sister to U-515. U-505 is shown tied up next to *Guadalcanal* shortly after its capture. (Author's Collection)

The capture of U-505 was an improvisation, but a carefully planned improvisation. It was the result of one man's vision: Daniel Gallery had been thinking about capturing a U-boat since 1942, when he commanded PBYs in Iceland. At the time it was on the order of a daydream, a possibility suggested during an aviators' bull session, but the idea stuck and Gallery nurtured it after taking command of *Guadalcanal*.

The destruction of U-515 by TG 22.3 on its second patrol suggested a way to execute that vision – if the opportunity arose. Gallery and his men decided to prepare for that opportunity, so that when chance offered another shot, they were ready to seize it. Success required equal measures of planning, preparation, and luck.

The result was as much of a surprise to Gallery's superiors as to the Germans. For them, the capture was on the order of opening a bottle containing a genie. It offered as much peril as opportunity, and had they realized what he was going to accomplish, they would have prohibited it. They knew, however, what he was planning. Gallery had discussed his plans in meetings which representatives of the Tenth Fleet, the Commander-in-Chief of the Atlantic Fleet, and US Navy antisubmarine-warfare experts attended. They disregarded the planning, believing it too incredible to actually occur.

The capture of U-505 is worth studying for many reasons. It is a classic example of how doing the unexpected can yield surprising success and illustrates the importance of imagination and improvisation on the battlefield. It also serves as a cautionary tale about the perils of secrecy, illustrating how keeping secrets can, on occasion, lead to actions that imperil those secrets. Especially when the actions taken were motivated to discover enemy secrets which are already known.

CHRONOLOGY

1935	
June 29	Kriegsmarine commissions U-1, its first U-boat.
1939	
September 1	Germany invades Poland.
September 3	Britain and France declare war on Germany.
September 25	U-505 ordered.
1940	
April 12	U-505 laid down.
July 7	U-boats begin operating out of French Atlantic ports, with the arrival of U-30 at Lorient.

A plaque recording submarines claimed sunk by *Guadalcanal*. Most likely made after its second war patrol, it credits *Guadalcanal* with four submarines sunk. (Actually it was only three. The fourth was badly damaged.) The capture of U-505 is marked by an inked caption on white tape. This expedient was probably due to the need to keep the capture of U-505 secret. (USNHHC)

1941	
May 24	U-505 launched.
July 7	Defense of Iceland transferred to the United States.
August 26	U-505 commissioned with Axel Loewe as captain.
August	United States sends VP 73 to Iceland, begins anti-U-boat patrols in Neutrality Zone.
December 7	United States attacked by Japan at Pearl Harbor and other spots in the Pacific.
December 11	Germany declares war on the United States.
December 30	Daniel Gallery sent to Iceland to take command of Patrol Plane Base Detachment, Iceland.
1942	
January 19 – February 3	U-505's first war patrol.
February 11 – May 7	U-505's second and most successful war patrol.
June 7 – August 25	U-505's third war patrol.
September 6	Peter Zschech takes command of U-505.
October 4 – December 12	U-505's fourth war patrol, and the last one in which it sank a ship.
1943	
January 30	Erich Raeder resigns as Supreme Commander of the Kriegsmarine. Dönitz replaces him.
February 5	Allies crack four-rotor Enigma cryptography and begin reading U-boat radio traffic again.
May 1	Admiral Ernest King creates the 10th Fleet, consisting of all antisubmarine activities of the US Navy in the Atlantic.

May 24	Dönitz withdraws U-boats from the North Atlantic.
May	Gallery detached from Iceland to take command of USS *Guadalcanal*.
August 1	*Zaunkonig* (Wren) German homing torpedo introduced.
September 25	USS *Guadalcanal* (CVE-60) is commissioned with Daniel V. Gallery as captain.
October 24	Peter Zschech commits suicide during one of U-505's war patrols.
November 8	Oberleutnant zur See Harald Lange assumes command of U-505.
1944	
January 3	TG 21.12 formed and departs Norfolk, Virginia, on its first war patrol.
January 16	Avengers from TG 21.12 sink U-544 and badly damage U-516.
February 16	TG 21.12 arrives at Norfolk, concluding its first war patrol.
March	TG 22.3 formed at Norfolk.
March 7	TG 22.3 departs Norfolk on its second war patrol.
March 16	U-505 departs Brest, France on its 12th war patrol.
April 8	U-515 sunk by TG 22.3.
April 10	U-68 sunk by TG 22.3.
May 5–14	During departure conferences prior to TG 22.3, Captain Gallery proposes capturing a U-boat, instead of sinking it if an opportunity arises.
May 15	TG 22.3 departs Norfolk on its third war patrol.
May 29	U-549 sinks USS *Block Island* and is sunk by USS *Eugene E. Elmore*.
June 4	U-505 captured by TG 22.3 off French West Africa.
June 19	U-505 and TG 22.3 arrive at Bermuda.
1945	
April 30	Dönitz succeeds Adolf Hitler as head of the Third Reich.
May 8	Germany surrenders. War in Europe (and Battle of the Atlantic) ends.
May 16	US Navy declassifies capture of U-505.
May 23	Third Reich dissolved by the Allies, Dönitz arrested.
August 5	*Saturday Evening Post* publishes "We Captured a U-Boat," by Daniel Gallery. It is the start of his literary career.
1946	
July 15	USS *Guadalcanal* decommissioned.
1954	
March 9	U-505 given to the Chicago Museum of Science and Industry. It has been on display there since then.
1959	
May 27	*Guadalcanal* sold for scrap.
1967	
March 3	Harald Lange dies in Hamburg.
1977	
January 25	Daniel V. Gallery dies.

ORIGINS

The Battle of the Atlantic

The capture of U-505 was an action fought during the Battle of the Atlantic – a small action by the scale of that conflict. A hunter-killer group with five warships fought one U-boat in less than 60 minutes from beginning to end. It was not a minor action, despite the short duration and handful of vessels involved. Its consequences and potential consequences echoed for the rest of the war and can only be understood when placed in the context of the entire Battle of the Atlantic.

The Battle of the Atlantic was the longest campaign of World War II, starting in August 1939 and ending in May 1945. It was filled with incidents like this one: three men on a raft, found adrift 87 days after their ship was torpedoed by a U-boat and sunk. (Author's Collection)

The Battle of the Atlantic was fought over control of sea access to the North Atlantic Ocean, and was World War II's longest campaign. It began on September 3, 1939 when France and Great Britain declared war on Germany, and concluded on May 8, 1945 when Nazi Germany surrendered to the Allies. It spilled over the boundaries of the North Atlantic Ocean, with engagements fought in the North Sea, Arctic waters, the Caribbean Sea, the South Atlantic Ocean, and even the Indian Ocean.

Although Axis surface warships and combat aircraft participated, U-boats were the Nazis' main striking force in the Battle of the Atlantic. It should not have been that way. No one – except Karl Dönitz who commanded Germany's U-boats – expected it to happen. Before World War II conventional wisdom held that submarines were obsolete as a commerce-raiding weapon. Most navies kept small submarines for coastal defense or

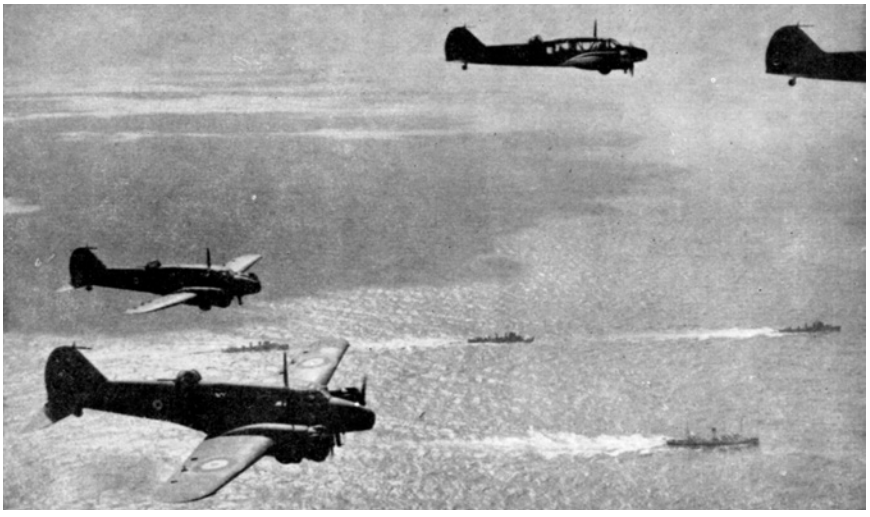
"fleet" submarines intended to scout for the battle line and pick off enemy warships before the decisive naval battle.

The irony was the conventional wisdom *was* correct. The combination of convoys, sonar (or asdic), and antisubmarine aircraft had made submarines obsolete, especially when combined with radar and radio direction finding. Everything except airborne radar was available when the war started in 1939, with effective airborne radar appearing two years later. However, simply possessing the proper tools was insufficient. They had to be deployed too. Great Britain, Europe's greatest naval power, deployed its antisubmarine tools too little and too late.

Britain's most egregious error was in Coastal Command. Of its 20 maritime patrol squadrons in 1939 only three (six if you included those with biplane flying boats) had aircraft which carried weapons which could sink a U-boat. The Fleet Air Arm also lacked aircraft and weapons capable of sinking U-boats. The largest bomb the main Coastal Command aircraft, the twin-engine Anson used in 13 squadrons, could carry was the 100lb antisubmarine bomb. It was incapable of damaging a U-boat, even with a direct hit.

Never tested before the war, the British only learned of its shortcoming after a British submarine took two direct hits in a friendly fire incident. It returned to port indignant, with trivial damage – the blasts had burst four lightbulbs in the conning tower. It took until January 1941 before the British fielded an effective antisubmarine weapon that could be used from aircraft other than the Sunderland, a 250lb depth charge.

Surface ships were sinking U-boats but they were too scattered and too few to sink them in large enough numbers. Had British antisubmarine aircraft other than the Sunderland been able to sink only ten percent of the U-boats they spotted and attacked (instead of the zero percent actually achieved) Germany would likely have run short of U-boats by July 1940. This could have prevented the massive Allied shipping losses to U-boats during the July to October 1940 U-boat first "Happy Time."



The Avro Anson, Britain's primary antisubmarine aircraft when World War II started, could only carry 100lb antisubmarine bombs. These were incapable of sinking or even seriously damaging a U-boat, even with a direct hit. Without a credible air threat to face, the U-boat menace grew to almost uncontrollable levels. (Author's Collection)

The result was predictable. The lack of effective antisubmarine aircraft enabled the U-boat threat, and matters grew worse when Dönitz outflanked British antisubmarine forces in the summer of 1940, when French ports became available. Success bred more U-boats, and even before the first "Happy Time" the Nazis began building massive numbers of submarines. Germany's initial goal was a U-boat force of at least 300 commissioned boats. This would permit at least 100 to be on war patrols in the Atlantic at any one time, and was the number Dönitz calculated he needed to win the tonnage war.

To win, Dönitz calculated he needed to sink 100,000 tons of enemy shipping each month. Dönitz's tonnage war was based on a simple calculation: if his U-boats could sink Allied merchant ships faster than the Allies could replace them, there would be too few ships available to supply Britain's industry and economy. Without sufficient raw materials, Britain's industries would collapse. Without sufficient imported food, Britain's population would starve, and Britain's surrender would soon have to follow.

Fortunately for the Allies, the pace of U-boat construction was initially slow, and the pace of commissioning U-boats and training them for service was inefficient. It would not be until 1942 that Dönitz, by then an admiral, reached 100 U-boats at sea on any given day. Additionally, poor Nazi policies handicapped Dönitz's tonnage war prior to mid-1942, with Hitler insisting Dönitz reassign U-boats from fruitful North Atlantic hunting grounds to the strategically sterile waters of the Mediterranean and Barents Seas.

The Royal Navy's destroyers were effective U-boat killers, but at the beginning of the Battle of the Atlantic there were too few. Adequate numbers of surface escorts only became available in 1943. (Author's Collection)

Germany's U-boat shortage gave Britain several years to overcome its antisubmarine deficiencies, though it took a painfully long time to develop some of the weapons needed. The Royal Air Force, which controlled Coastal Command, was fixated on strategic bombardment and stinted Coastal Command of long-range aircraft, such as the twin-engine Wellington and Whitley, or four-engine Liberator, required for maritime patrol. It even pulled Coastal Command aircraft from maritime patrol to make up bomber numbers in their 1,000-plane bombing raids on Germany.

The first airborne radar sets developed, instead of being added to maritime aircraft, were deployed in Fighter Command night fighters. Later, Coastal Command had to

wrestle with Bomber Command for Mark III radars. Additionally, after a U-boat sank the fleet carrier *Courageous* in September 1939 the Fleet Air Arm abandoned antisubmarine warfare for 18 months.

Despite all these difficulties, the British were beginning to turn the tide on the Battle of the Atlantic as 1941 neared its end. The Royal Navy had more surface warships available for convoy escort and their crews were becoming skilled at killing U-boats. Coastal Command was able to fill its ranks with aircraft built in the United States, and the Lockheed Hudson and Consolidated Catalina did yeoman duty in antisubmarine squadrons. Three of them teamed up to capture a U-boat off Iceland in July 1941.

More importantly, Coastal Command got Bomber Command to assign 12 of the 120 four-engine Liberators sent to Britain to 120 Squadron. These radar-equipped very-long-range aircraft had an almost magical ability to make U-boat packs disappear when they appeared.

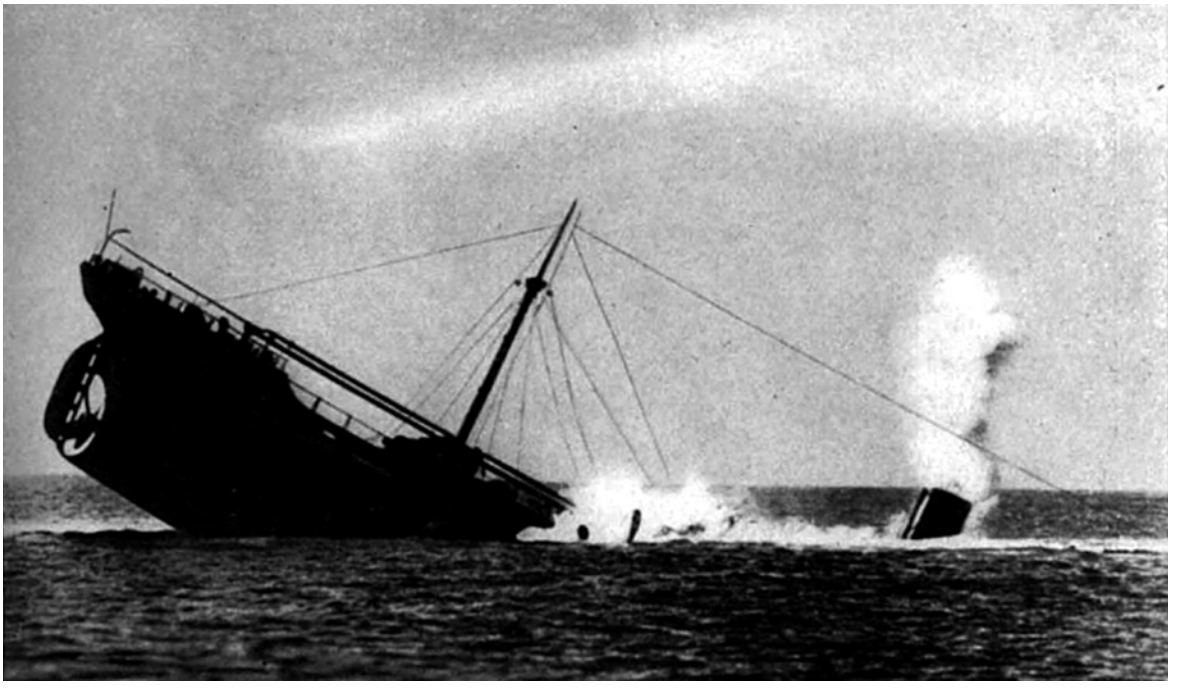
Even more important, the Fleet Air Arm re-entered the antisubmarine war. *Audacity*, an escort carrier built on the hull of a captured German freight liner entered service in mid-1941. Its speed topped at 20 knots, too slow for the battle fleet, but more than fast enough to escort convoys. Its aircraft were deadly against both marauding Fw-200 Condors and U-boats. (The Condor, converted from a four-engine airliner, terrorized the North Atlantic in late 1940 and 1941. It specialized in attacking cargo ships sailing independently, but also shadowed convoys.) *Audacity* only covered four convoys before it was sunk, but it built an impressive record. This included an epic convoy fight from Gibraltar to Liverpool where for the first time in World War II more U-boats were sunk than convoy ships. Two cargo ships and two warships were sunk, but seven U-boats joined them.

The Fleet Air Arm also began using radar-equipped Swordfish torpedo bombers as antisubmarine aircraft in 1941. Since there were no escort carriers available for them, they initially operated out of Gibraltar. By the end of December 1941, a Swordfish attacked and sank a U-boat at night; a first, meaning darkness no longer shielded U-boats from detection.

This all came together by December 1941 with the eastern North Atlantic Ocean promising to become a killing ground for U-boats in 1942. Then the United States entered the war. On December 7, 1941 Japan attacked the United States, Great Britain and its Commonwealth nations, and the Netherlands in the Pacific. Three days later Italy and Germany declared war on the United States. From then, everything changed.

In the long run, the gratuitous declaration of war on the United States doomed the Axis. The United States had an economy larger than all Axis powers (Germany, Italy, Japan, Vichy France, Hungary, Romania, and Bulgaria) combined. Since the economies of the rest of the Allied coalition (mainly Britain, the Commonwealth nations, and the Soviet Union) were also as large as the combined Axis economies, this meant the Axis was out-produced by a factor of 2.5 to 1.

In January 1942 though, that all lay in the future. The United States needed six months to get itself on a war footing and was distracted by the threat in the Pacific, sending aircraft and ships originally intended for use



Flawed US Navy antisubmarine doctrine led to unescorted merchant ships sailing individually along the American seaboard. The result was a second "Happy Time" for U-boats as they slaughtered the unprotected shipping. (Author's Collection)

against Germany to stem the Japanese tide. While the eastern North Atlantic was locked down, the western Atlantic was wide open and would remain so until August 1942.

A second "Happy Time" resulted, as U-boats stalked the eastern seaboard of North America. The US Navy believed a weakly defended convoy was worse than no convoy so, until the US Navy had resources to provide strong escorts on the Atlantic seaboard without weakening the escorts of transatlantic convoys, the US Navy had ships sail individually along the American coast.

Strong escorts were needed against wolf packs, but against submarines operating individually even weakly defended convoys lowered losses. They reduced the opportunity to sight a target and, when a convoy was found, the U-boat had too many targets to sink more than one or two. The American Atlantic Coast was at the extreme range of Germany's U-boats and they could not operate in packs due to fuel shortages, so were limited in number.

This miscalculation led to a massacre of coastal shipping between January and July 1942. The problem was magnified by the ineffectiveness of US antisubmarine aircraft in the Americas. During the first six months of US involvement they proved as inept at sinking U-boats as Coastal Command had been during the first six months of British involvement, and this even though the US had aerial weapons capable of sinking U-boats.

The only good news for the Allies was that Dönitz had too few U-boats to fully exploit American weaknesses between January and July 1942. He was never able to have more than a dozen U-boats operating off America's eastern coastline and the Gulf of Mexico at any one time during that period. That problem was being overcome by the Germans by the summer

of 1942 when a massive U-boat construction binge was yielding results. By June, Dönitz could expect to have 100 or more U-boats on patrol on any given day.

However, the Allies were growing more capable. American war production was gaining speed, and success in the Pacific in May and June 1942 allowed the US Navy to reinforce antisubmarine forces in the Atlantic. US Navy and Army antisubmarine aircraft were also growing more deadly, although their numbers remained too small throughout 1942 to do more than counterbalance increased U-boat numbers.

The problem was simple. The Allies lacked the strength to be strong everywhere in the Atlantic from July 1942 until March 1943. Wherever the Allies placed antisubmarine defenses in strength (such as the convoys used in the November 1942 *Torch* landings in North Africa), the U-boat threat wilted. However, that strength meant accepting inadequate coverage elsewhere, such as the North Atlantic run between America and Britain. Allied losses there soared to unacceptable numbers in November 1942 as Dönitz directed his U-boats to attack those weak spots.

The problem peaked in early 1943. After a downturn in losses in December 1942 and January 1943, losses took an ominous upturn, with 88 ships sunk in February and 133 in March. At the end of that month many believed the Allies were losing the Battle of the Atlantic.

In reality, March 1943 marked the U-boats' high tide. Allied losses in April were half that of March and continued downward. Several factors converged to give the Allies control of the Atlantic for the rest of the war. The most important was that the United States had finally

The ultimate solution to the U-boat threat was hunter-killer groups built around escort carriers, like this one. They permitted antisubmarine aircraft, the U-boat's greatest menace, access to all of the Atlantic Ocean. (Author's Collection)

achieved full war footing. Destroyers ordered when the war began were finally entering commission. More importantly, destroyer escorts, ships designed and built as antisubmarine vessels, were entering service in early 1943. By 1944 there would be so many of these built that future production was slashed.

Antisubmarine aircraft were finally appearing in large numbers, too. This was especially true of the very-long-range four-engine Liberators, along with Catalinas, Mariner flying boats, and Venturas (an improved version of the Lockheed Hudson) that were also appearing in large numbers. Moreover, these aircraft were equipped with radar and Leigh Lights. Radar allowed surfaced U-boats to be spotted at night, with Leigh Lights allowing them to be illuminated and attacked.

Three new weapons appeared by April 1943: the Fido torpedo, the high velocity aircraft rocket (HVAR), and the escort carrier. Fido was an air-dropped acoustic homing torpedo. If a U-boat submerged when it spotted an attacking aircraft, Fido would faithfully follow the U-boat, blowing an inevitably fatal hole in its pressure hull when it finally made contact. The HVAR was a 5in steel-tipped rocket fired from antisubmarine aircraft. It traveled at supersonic speed and would punch a hole in the pressure hull if it hit. Even single-engine aircraft carried six or eight.

Finally, escort carriers were coming off the launching ways. They were being mass-produced on the Pacific Coast, and could carry aircraft armed with depth charges, Fidos, and HVARs anywhere in the Atlantic, even regions outside the range of land-based antisubmarine aircraft. At first, escort carriers accompanied convoys, but the Allies soon learned they were most effective operating independently of convoys, employed in groups hunting U-boats wherever they concentrated.

In May 1943 the tide turned. The Kriegsmarine lost 43 U-boats that month, roughly half the losses due to aircraft and the other half to ships. It proved so bad that Dönitz withdrew the U-boats from the North Atlantic in June only to suffer severe losses in July, when they returned. After July 1943 wolf pack attacks were viewed as counterproductive since they concentrated U-boats into a small area where they could be eliminated in greater numbers as escort carrier groups swept in. From that point on Dönitz dispersed his U-boats widely, sending more on long-distance patrols than previously.

The U-boats were also operating under handicaps they were unaware of. The Allies had cracked the ciphers used to communicate with U-boats in 1943, and within a year were reading them virtually in real time. Since Dönitz micromanaged U-boat operations from shore, radioing instructions, this made it easier to find the U-boats. Furthermore, radio direction finding, called "Huff-Duff" for "High-Frequency Direction Finding," became more sophisticated, with tracking stations on both sides of the Atlantic as well as ship-mounted versions. Information was processed at central locations in both Britain and the US, providing warships and aircraft with up-to-the-minute information on U-boat locations and intentions. By January 1944, the hunting U-boats had become the hunted.

INITIAL STRATEGY

U-505

There were two major types of U-boats used in World War II, the Type VII and the Type IX. The Type VII, known as the Atlantic Boat, displaced 750 tons submerged. They had five torpedo tubes, four forward and one aft. The most common class of U-boat built (693 commissioned), they were intended for use in the eastern North Atlantic. These are what most people think of when they think of World War II German U-boats. Dönitz planned to operate them in groups, attacking convoys, overwhelming the escorts through numbers.

Type IX boats had a different mission. Type IXs were long-range boats, intended to operate independently in distant waters, where convoys were not being used. The first ones built had a range of 10,000nmi at 10 knots

Attacking a well-guarded convoy with independent, individual U-boats was suicidal. The *Rudeltaktik*, or wolf-pack attack, countered the convoy's defenses. Coordinated attacks by multiple U-boats overwhelmed the escorts by giving them too many targets to concentrate on any single attacking submarine. The Type VII boat was designed for these wolf-pack tactics. (Author's Collection)

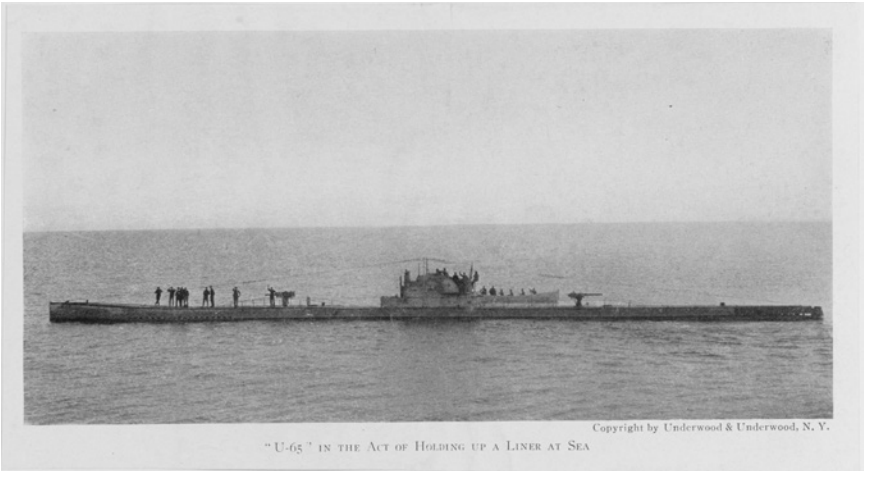
(surfaced), while the final version built could travel an incredible 23,700nmi at 12 knots (surfaced). They could virtually circumnavigate the globe without refueling.

They were larger than the Type VII boats at 1,200 tons submerged displacement. They had six torpedo tubes (four forward and two aft) and carried 22 torpedoes. Six were carried in the torpedo tubes with an additional six reloads carried internally. Ten other torpedoes were carried externally in five torpedo containers. These sat atop the pressure hull, three aft of the conning tower and two forward of it. These reloads had to be transferred to the torpedo rooms, a difficult and time-consuming operation that had to be performed while surfaced.

Five versions of the Type IX were built: Type IX (8 commissioned), Type IXB (14 commissioned), Type IXC (54 commissioned), Type IXC/40 (87 commissioned), and Type IXD (30 commissioned). The main difference between these types was the amount of fuel they could carry, and hence their range. U-505 was a Type IXC boat, the most common variant. The Kriegsmarine commissioned 193 Type IX U-boats.

Type IXs and all German U-boats carried 21in torpedoes. When entered in combat, the two main torpedoes used were the G7a T1 compressed-air torpedo, and the G7e T2 electrically powered torpedo. Both carried a 280kg (617lb) Hexanite-filled warhead. A single hit could sink most merchant ships. These were fitted with contact triggers, which detonated upon striking a ship. The G7a had a range of 8,000m when set for 40 knots or 14,000m at 30 knots. These torpedoes left a visible surface trail of bubbles as they traveled, potentially warning targets of their approach. The G7e reached 5,000m at their 30-knot setting and left no trail.

In 1943 Germany introduced the *Zaunkonig* (Wren) acoustic torpedo. (The Allies called it the German Naval Acoustic Torpedo – GNAT.) It homed in on the target's propeller noise after following an initial straight course, and was supposed to be fired from a depth of at least 100ft. Intended against escort warships, it had a 24-knot speed and a 6,000m range. Initially highly successful, British-developed countermeasures nullified much of its advantages.



Type IX U-boats, such as Type IXB U-66, were cruiser submarines intended to operate independently in distant waters where convoys were not being used. Their main drawback was a limited ability to find targets. They were successful only when large concentrations of unescorted shipping were available, such as in American waters in the spring of 1942. (USNHHC)

U-505 was ordered on September 25, 1939, one of 67 U-boats the Kriegsmarine ordered in World War II's first month. U-505's keel was not laid for nine months, on June 12, 1940, at the Deutsche Werke shipyard in Hamburg. This was one of three yards building U-boats prior to World War II. German shipbuilding progressed at an almost leisurely pace in the war's opening years. Although one of the first Type XIC U-boats laid down, it was not launched until May 24, 1941, and commissioned only on August 26, 1941 – two years and one day after the order was placed. (By contrast the peacetime US Navy took only 14 months between keel-laying and commissioning of Tambor-class submarines, twice as large as the Type IXCs.)

Like other Type IXC boats, U-505 had an overall length of 76.76m, an overall beam of 6.76m, and a hull depth of 9m. From keel to the tip of its periscope (or periscope depth) was 14m. The pressure hull was 4.4m across. The 2.36m difference between the overall beam and the pressure hull was due to fuel stored in tanks between the outer hull and pressure hull. These saddle tanks gave Type IXCs the nickname "Sea Cows" due to their portly appearance. They had a test depth of 200m, although this was occasionally exceeded, with some successfully diving 250m – much deeper than contemporary Allied submarines.

In addition to its six torpedo tubes, Type IXC boats carried deck guns. When commissioned, U-505 carried a 105mm gun on the deck forward of the conning tower and a 20mm antiaircraft gun in the aft part of the conning tower. It used the 105mm on occasion during its 1942 war patrols. By 1943 the opportunity to attack ships with deck guns were shrinking while the need for protection from aircraft increased. During an early 1943 refit to repair damage suffered during its fourth war patrol, the original deck guns were replaced. A quad 20mm and two twin 20mm guns were mounted on a spacious platform added to the conning tower. (The crew called this the *Wintergarten*.) In late 1943, the quad 20mm was replaced with a heavier 37mm gun.

U-505 had two 2,200hp nine-cylinder MAN diesel engines, known to the crew as 'Jumbos'. They could only be used surfaced, as they required air, and were capable of pushing U-505 at 18 knots when the boat was surfaced. At cruising speed, 10 knots, U-505 could travel 13,400nmi on its standard load of 208 tons of diesel oil. These engines also powered dynamos which charged the boat's bank of 110VDC batteries.

Its batteries were both a strength and a weakness. They powered two Siemens electric motors. each producing a maximum 500shp. They could drive U-505 at up to 7 knots underwater, and gave it a 63-mile range submerged. This underwater mobility gave U-boats their menace, allowing them to attack undetected, shielding them from visual or radar observation, and allowing them to hide in the depths of the ocean.

Their weakness was the constant need to recharge the batteries. They needed to be recharged after ten hours underwater, based on standard underwater operations. If the batteries were fully charged a Type IX might be able to remain submerged for 15 or 16 hours, if it lay doggo in the

A U-boat's diesels were both its main strength and its greatest weakness. They gave U-boats great operational reach and independence of movement. However, they required the U-boat to remain surfaced, vulnerable to air attack, for at least one-third of the day. (Author's Collection)

depths of the ocean, in hopes of outwaiting antisubmarine craft above hunting for it. Or it could run its batteries flat in a little over an hour running at top submerged speed.

It took a minimum seven hours of surface cruising to fully recharge the batteries. This was simple early in the war, when antisubmarine aircraft were scarce and could not cover much of the ocean. As 1943 began, however, land-based maritime patrol aircraft covered most of the northern North Atlantic, and the appearance of escort carrier groups meant aircraft could be found anywhere in the Atlantic.

The situation got worse in 1944, when land-based aircraft began operating out of the Azores and hunter-killer carrier groups became more numerous. These carrier groups had no responsibility other than destroying U-boats. Once they detected a U-boat, they remained with it until they were certain it had been sunk. U-boats caught by them had no hope of simply outwaiting their pursuer until it was forced to return to the convoy it was escorting. The hunter-killer group would wait until the U-boat was forced to surface and finish it.

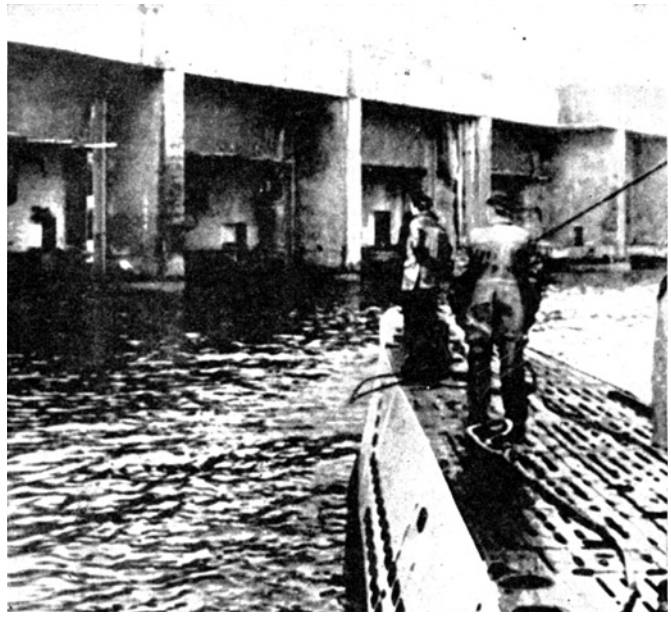
A solution was adding a Schnorchel – a tube which reached the surface at periscope depth. It allowed air to reach the diesels and engine exhaust to exit while the U-boat was submerged, but meant the U-boat could not dive deeper than periscope depth and not travel faster than 5 knots. In rough weather, waves swept over the Schnorchel, cutting off the flow of air while it was covered. The engines then drew air from the U-boat. Still worse, while the Schnorchel head reduced radar profile it was still detectable by some Allied radars and a "snorting" U-boat (as the Germans called running under Schnorchel) ran deaf. The running diesels' engine noise made use of sound detection gear impossible. On the other hand, they made the U-boat highly detectable by sonar and hydrophones.

None of this affected U-505, as U-505 never had a Schnorchel fitted. Furthermore, the presence of one would not have changed U-505's fate since it was initially detected by sonar while motoring submerged. U-505 had been approaching obsolescence during its first few war patrols and had become obsolete by 1944, with or without a Schnorchel. It was a mid-1930s design, before radar and radio direction finding had appeared and without a means to counter them.

Although Type IXs had tremendous range, they were slow-diving and responded slowly to maneuvers. These limitations meant Type IXs could not safely be used to attack convoys. While intended to operate individually against independently sailing cargo ships, they had no means of finding

targets beyond visual observation. It had to come within 15 miles of a potential target while operating on the surface or within three miles if sailing submerged.

Under the right circumstances Type IX boats were amazingly successful. Eight of the ten top-scoring U-boats were Type IX boats. The 14 Type IXB boats averaged 100,000 tons of enemy shipping sunk per boat. U-107 sank 87,000 tons of shipping on one mission (its second war patrol) and over 243,000 total. But these patrols mostly occurred between October 1941 and June 1942 when the boats were operating in lightly patrolled but heavily trafficked waters such as the bulge of Africa or the American Atlantic seaboard. These boats could not help but come across individual targets.



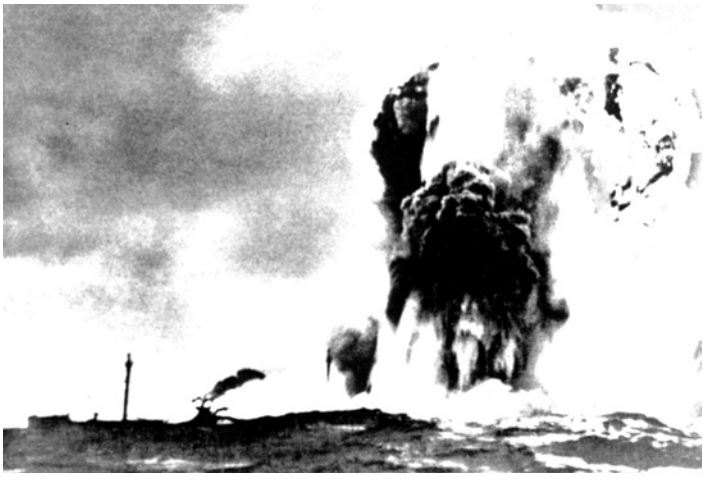
U-505 belonged to the Kriegsmarine's 2nd Submarine Flotilla, which operated out of Lorient, France. This was the primary flotilla operating Type IX boats. These sub pens were the home port for Type IX U-boats operating out of France. (Author's Collection)

Unlike the Allies who had excellent signal intelligence, the Kriegsmarine had no means of directing Type IXs to independently sailing merchantmen in waters where Type IXs operated: the American Atlantic Coast, the Caribbean, the South Atlantic Ocean, and Indian Ocean. Those ships were issued routing orders when they sailed. Their orders were not broadcast and the broadcasts sent while they were sailing generally advised them of sea areas to avoid, rather than sailing instructions of where to go.

The result was many Type IX boats, especially after January 1943 spent weeks sailing to a destination, remaining there for a month or more, in a sea bereft of targets. This was especially true when they were dispatched to patrol waters largely free of aircraft. The Allies then had enough maritime patrol aircraft that the only reason they were not patrolling a sea zone was because there were few ships there to protect.

U-505's career reflects that reality. It scored kills on only three war patrols, its second through fourth, all of which occurred in 1942. Its second war patrol was its most successful. (The first was a short 18-day transit from Kiel, Germany, to Lorient, France, to join the 2nd Flotilla, which then exclusively operated Type IX boats.) It departed Lorient on February 11 assigned a patrol area off Africa's bulge, from Dakar to Abidjan. Arriving on station in early March, between March 5 and April 4, a 30-day period, its first captain, Axel Loewe found and sank three freighters and a tanker. The freighters averaged 5,800 tons and the tanker *Sydhav* was 7,587 gross registered tons (GRT).

Although they spotted several Sunderland patrol aircraft over the ocean around Freetown, most of the time the Sunderlands did not spot them. They were only attacked once, on April 18 while returning to France. They concluded the patrol on May 7, returning to Lorient credited with 25,041 tons sunk.



On its third war patrol U-505 sank two large freighters in the Western Atlantic near Puerto Rico, before entering its Caribbean patrol area. Over its service life U-505 was credited with a total of 45,000-plus tons of shipping sunk. (Author's Collection)

Their third war patrol sent them to the Spanish Main, Caribbean waters north of South America. Again under command of Loewe, they departed Lorient on June 7. U-505 made two quick kills on June 29 heading to their patrol area. They caught freighters *Sea Thrush* (5,447GRT) and *Thomas McKean* (7,191GRT) sailing independently in the North Atlantic, about 350 miles east of Puerto Rico. From July 3 when it entered the Caribbean until August 4 when it departed, U-505 spotted and sank just two small schooners.

However, they would have been better left alone. Both were Colombian-flagged neutral ships. The 110-ton schooner *Roamar*, sunk on July 21, was owned by a Colombian diplomat. The ship refused to heave-to and be examined, so Loewe sank it with his deck gun. They repeated the performance with the 153-ton *Urious* the next day, killing 13 Colombian sailors. The sinkings kicked up a diplomatic ruckus, and Loewe, who suffered from appendicitis on the way home and required surgery upon arrival in Lorient on August 25, received a relief from command of U-505. The Kriegsmarine used this relief to placate Colombia, which remained neutral until November 1943.

The fourth war patrol, under a new captain, Peter Zschech, continued the trend. U-505 again departed Lorient for the Spanish Main on October 4, patrolling the South American coast east of Trinidad. On November 7, over a month after departure, it made its only kill of the patrol, 7,173GRT *Ocean Justice*. It was its only contact to date on that patrol. Three days later it was attacked by a Hudson that made a direct hit with a depth charge.

The depth charge hit the forward deck gun, which saved U-505. The gun kept the explosion far enough from the pressure hull that it did not crack. The blast destroyed the gun and much of the upper deck. It created so much damage U-505 had to return to port, unable to submerge deeper than periscope depth. U-505 held the distinction of being the most badly damaged U-boat ever to return from a war patrol. It required six months to repair the damage.

U-505's next six war patrols proved exercises in frustration. The crew would have been better off transferred to a new Type IX boat or sending U-505 to Germany for repairs. Many Lorient dockyard workers were French with no love for their German occupiers and U-505's need for massive repairs offered wide scope for sabotage. Between July 1 and October 9, 1943, U-505 left Lorient six times. On the first five attempts they returned within two weeks, each time after discovering a crippling repair defect.

The sixth patrol also experienced mechanical failures, which the crew and captain disregarded to remain at sea. The lack of success was preying

on Zschech. As U-505 approached the Azores, it was attacked by Allied warships. During the depth-charge attack, Zschech's nerve cracked and he committed suicide. U-505 returned to Lorient under command of its First Watch Officer, Paul Meyer. At Lorient, he was superseded by Harald Lange.

Lange was a merchant marine officer who maintained a reserve commission. When World War II started, he was called to active service. He served in minesweepers and patrol boats during the first two years of the war, transferring to U-boat service in 1942. He served as First Watch Officer on U-180 during its 145-day first patrol, taking temporary command when it returned to port. He was transferred to U-505 on November 8, 1944.

Task Group 22.3

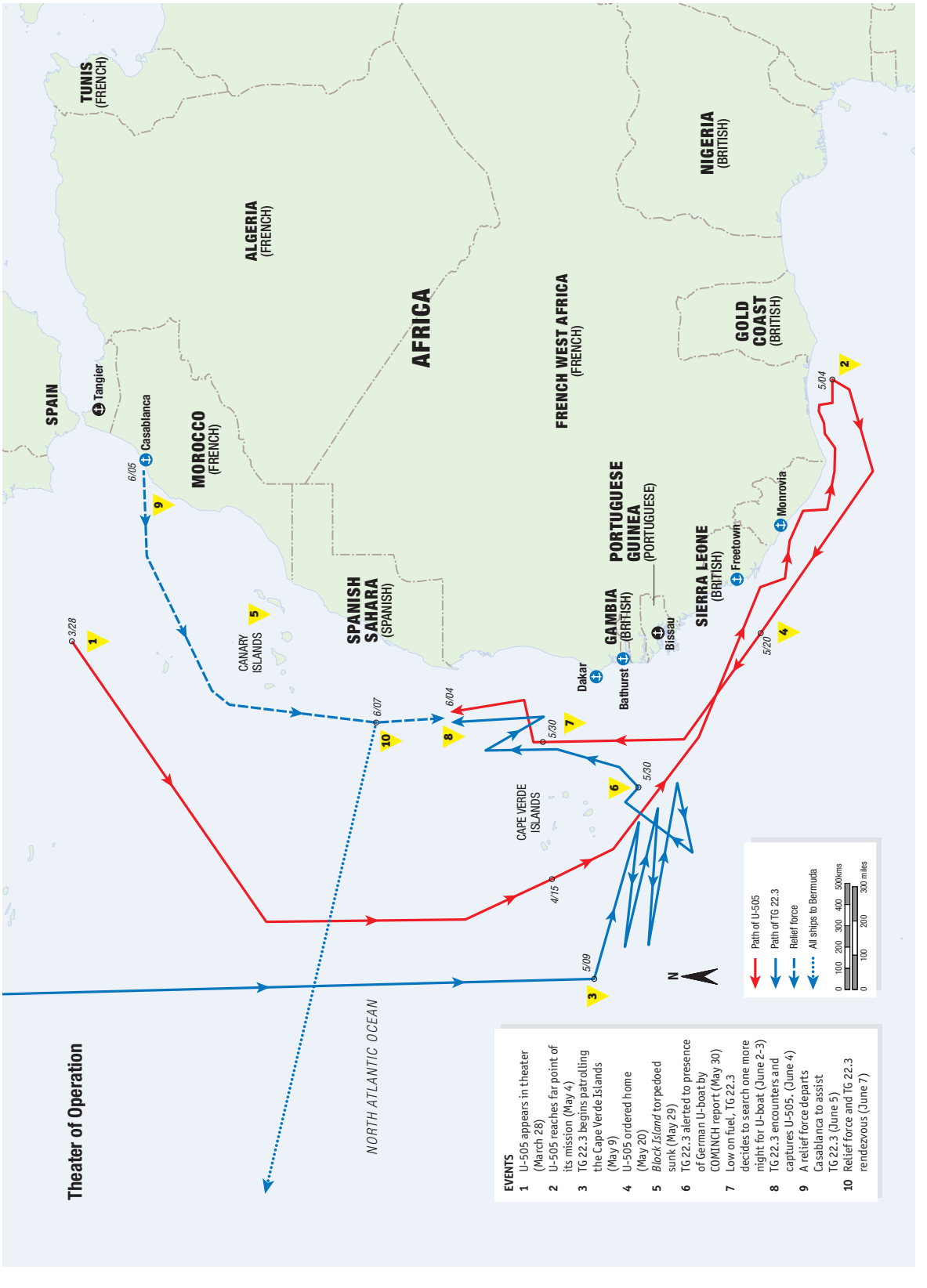
Task Group 22.3 was one of 11 hunter-killer task groups in the Atlantic between March 1943 and May 1945. Each group consisted of three elements: an escort carrier, a composite squadron of aircraft assigned to the carrier, and an escort division of five antisubmarine surface warships, either destroyers or destroyer escorts. Some groups conducted multiple war patrols. In total, the 11 groups conducted 52 patrols.

Each task group was commanded by the escort carrier's captain. For TG 22.3 that was Captain Daniel V. Gallery. Born in Chicago in July 1901, he was one of four brothers who saw service in the United States Navy. Three, including Dan, attended the US Naval Academy and served as line officers in World War II. All retired as rear admirals. The fourth, ordained as a Catholic priest, served as a chaplain during the war.

Gallery began his naval career as a surface warfare (or "black shoe") officer after graduating from the naval academy in 1920. He served on an armored cruiser and battleships in the 1920s. In 1926 he applied for aviation training, gaining his wings and aviator's brown shoes in 1927. Between gaining his wings and the start of World War II in 1939, Gallery held a wide variety of aviation jobs. He flew off carriers and battleships, served as a flight instructor, torpedo bomber pilot, and maritime patrol pilot. An innovative officer, he developed a reputation as a mechanical wizard, and did a stint in the Aviation Ordnance Section of the Bureau of Ordnance. Among his innovations was a proposal for a radio-controlled flying bomb, a 1930s precursor to the cruise missile or drone.

In January 1941, with the US still neutral, he was sent to Britain as a naval attaché at the US Embassy in London. To maintain flying time he ferried Spitfires

Captain Daniel V. Gallery commanded the escort carrier *Guadalcanal* and TG 22.3 in spring 1944. He is shown here aboard *Guadalcanal* on June 9, 1944. Technically he is out of uniform, as he is wearing a Kriegsmarine's officer's hat found aboard U-505. It is not the captain's hat, as U-boat skippers had a white cover. (USNHHC)


Theater of Operation
NORTH ATLANTIC OCEAN
SPAIN
Tangier
Casablanca
MOROCCO (FRENCH)
ALGERIA (FRENCH)
TUNIS (FRENCH)
AFRICA
CANARY ISLANDS
SPANISH SAHARA (SPANISH)
CAPE VERDE ISLANDS
Dakar
GAMBIA (BRITISH)
Bathurst
PORTUGUESE GUINEA (PORTUGUESE)
Bissau
FRENCH WEST AFRICA (FRENCH)
SIERRA LEONE (BRITISH)
Freetown
Monrovia
GOLD COAST (BRITISH)
NIGERIA (BRITISH)
3/28
6/05
6/07
6/04
5/30
5/30
4/15
5/09
5/20
5/04
N
Path of U-505
Path of TG 22.3
Relief force
All ships to Bermuda
0 100 200 300 400 500kms
0 100 200 300 miles
EVENTS
1 U-505 appears in theater (March 28)
2 U-505 reaches far point of its mission (May 4)
3 TG 22.3 begins patrolling the Cape Verde Islands (May 9)
4 U-505 ordered home (May 20)
5 Block Island torpedoed sunk (May 29)
6 TG 22.3 alerted to presence of German U-boat by COMINCH report (May 30)
7 Low on fuel, TG 22.3 decides to search one more night for U-boat (June 2-3)
8 TG 22.3 encounters and captures U-505. (June 4)
9 A relief force departs Casablanca to assist TG 22.3 (June 5)
10 Relief force and TG 22.3 rendezvous (June 7)

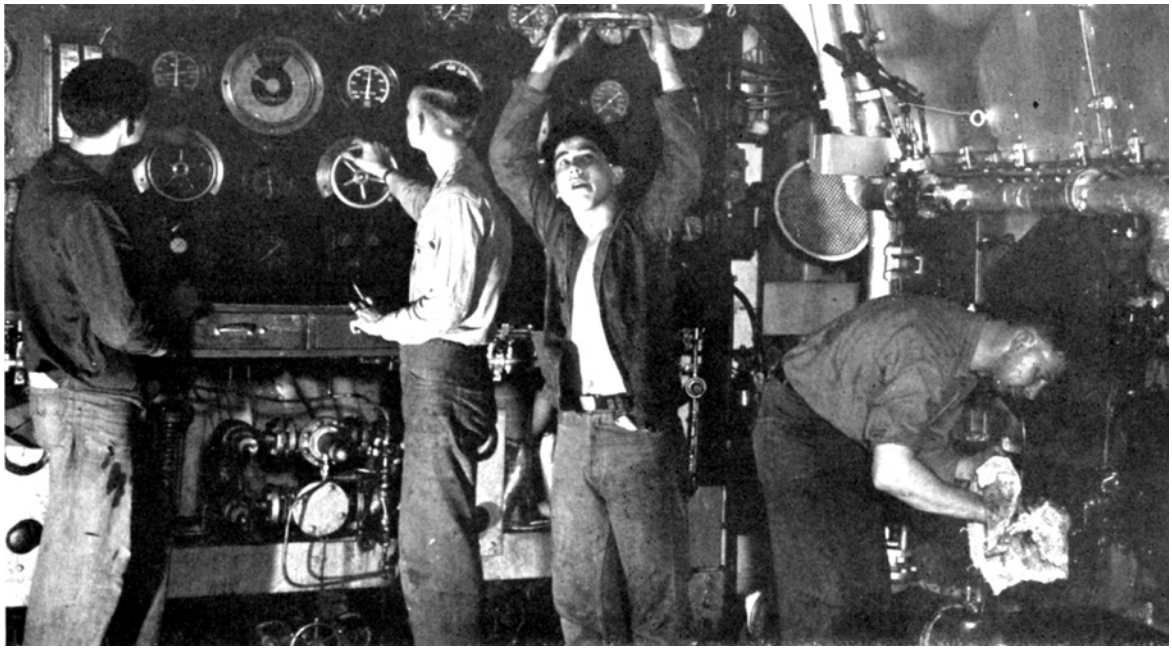
from the factory to RAF airfields. He was in charge of organizing a US Navy patrol squadron base in Northern Ireland, which would become operational and he would command once the US entered the war.

The Japanese attack on Pearl Harbor scrambled pre-war plans for a war only against Germany. Instead of Ireland, on December 30, 1941, Gallery was sent to Iceland, where he took command of the Patrol Plane Base Detachment. His new assignment proved the most important US Navy aviation command in the Atlantic in early 1942. He did a good job at it, expanding a small 16-plane detachment into a large facility, and creating an aggressive naval aviation presence around Iceland. His reward for a job well done was a bigger one. In May 1943 he was detached from Iceland to take command of *Guadalcanal*, an escort aircraft carrier then under construction in Puget Sound.

Guadalcanal (CVE-60) was one of 50 mass-produced Casablanca-class aircraft carriers built by Kaiser Shipyards. These were escort carriers, designed for auxiliary duties. Although purpose-built as warships, the design was based on mercantile standards, similar to US Maritime Commission Type C-3 cargo ships. They displaced 8,188 tons, with a waterline length of 490ft, a 20.75ft draft and a 65.16ft hull beam. The flight deck atop it increased it to a 512.25ft overall length and 108ft extreme beam.

They were, however, not fast. With 9,000hp boilers and reciprocating steam engines they had a top speed of 19 knots, and they could absorb about as much damage as a C-3 cargo ship. As Gallery put it, "A carrier right smack at the scene of a sound contact is like an old lady in a barroom brawl. She has no business there, and can do nothing but get in the way of those who are going to need elbow room for the work at hand."

What they did was carry aircraft, a maximum of 27; though they generally carried fewer in the Atlantic. *Guadalcanal* typically carried 21



Escort carriers were unglamorous warships. They were built with slow but reliable reciprocating triple-expansion steam engines because the unprecedented increase in ship construction led to a shortage of large steam turbine engines. This is the boiler room of a Casablanca-class escort carrier. (Author's Collection)

during its antisubmarine patrols, which was more than enough. Those aircraft meant *Guadalcanal* could sink a U-boat without the carrier coming within range of a torpedo. The escort carrier task groups provided a mobile airfield that could strike anywhere in the Atlantic.

US Navy escort carriers in the Atlantic were home to an air group made up of a composite squadron, a mix of torpedo bombers and fighters. Typically the squadron had nine Wildcat fighters (usually the General Motors-manufactured FM-2 rather than the Grumman-built F4F) and 12 Avenger torpedo bombers. (These were TBMs if built by General Motors and TBFs if made by Grumman.)

The Wildcat was functionally obsolescent as a fighter by 1944, but remained a match for any aerial opposition it might encounter in the Atlantic. These Wildcats carried four .50in machine guns and had wing racks to carry two 250lb bombs or six HVAR rockets. They had a top speed of 331mph, and a 700-mile range. Allowing fuel for combat, a Wildcat could patrol a 200-mile radius around its carrier. Its .50cal machine guns could penetrate the hull plating of a U-boat, but usually not the pressure hull. Its rockets could, though.

The Avenger was designed as the Navy's torpedo bomber, but proved a versatile multi-mission bomber. It could carry bombs, depth charges, and Fido "mines" in addition to torpedoes. Avengers could also carry eight rockets on wing racks. On antisubmarine duty they either carried four 340lb depth charges or two depth charges and a Fido. The depth charges could sink a surfaced U-boat or one just starting to dive, while the Fido would track a U-boat that had already submerged.

The Avenger had a top speed of 378mph and a cruising speed of 215mph. It had a 900-mile range. Besides being slow, its weakness was its machine

The Avenger, whether built by Grumman or General Motors, was a deadly opponent against U-boats. It could sink surfaced U-boats with rockets, submerging U-boats with depth charges, and submerged U-boats with homing torpedoes. Pairing Avengers with Wildcats made them even more effective. (Author's Collection)

gun armament. It carried one or two forward-firing .50cal machine guns, a .50cal in a powered dorsal turret and a flexible .30cal in ventral position. This was too light to suppress a U-boat's antiaircraft battery. The solution was to team Avengers with Wildcats. The Wildcats first strafed the U-boat, allowing the Avenger to bomb it.

Air groups were assigned at the beginning of a cruise, flying aboard the escort carrier when the patrol began and departing when it ended. *Guadalcanal* had three air groups aboard it during its Atlantic service: VC-13 in January–February 1944, VC-58 in March–April and VC-8 in May–June.

Finally submarine-hunter task groups had a surface contingent of five destroyers or destroyer escorts. These were necessary to protect the escort carrier from U-boats and to deal with submerged U-boats. While a Fido could sink a just-submerged U-boat, they would fail to find deeply submerged ones. Additionally, aircraft usually found it difficult to find submerged U-boats.

U-boats were largely invisible once submerged and by late 1943 they had radar-detectors capable of perceiving the centimeter-wave radar carried by antisubmarine aircraft. When the Naxos alerted, the U-boat would go deep, rendering aircraft detection impossible. Antisubmarine warships carried sonar capable of detecting and tracking submerged U-boats. They also had greater endurance than aircraft – or U-boats. Once they found a U-boat they could remain over it until they sunk the U-boat or the U-boat was forced to surface due to lack of battery power and oxygen.

A fight between a US Navy surface escort and a U-boat almost always ended badly for the U-boat. The warships were armed with a main battery of 5in, 4in or 3in guns capable of cracking a U-boat's hull, and a sizeable number of 40mm and 20mm antiaircraft guns which were used to suppress the U-boat's deck guns.

Most warships used for this duty had a top speed of 20 to 25 knots. Destroyers assigned to Atlantic antisubmarine groups were typically flush-deck destroyers dating to World War I, which had been converted to antisubmarine duties. They typically sacrificed one of their boiler rooms for additional fuel, and had been rearmed with 3in guns and a heavy depth-charge battery. By 1944 these older destroyers were being replaced by new and more capable destroyer escorts.

The destroyer escort was a downsize destroyer optimized for antisubmarine duty. They were smaller than destroyers, and slower. Diesel-powered destroyer escorts had a 21-knot top speed. Steam-powered ones, a 25-knot top speed. They were typically armed with three 3in guns, one triple-mount 21in torpedo tubes and an array of 20mm and 40mm antiaircraft guns. They carried a heavy battery of depth charges, including two stern racks and six K-gun depth-charge launchers. They also carried a Hedgehog forward.

The Hedgehog launched 24 antisubmarine mortars. These rounds weighed only 65lb, but were capable of cracking open a U-boat's hull. They were fired so the shells hit the water in a circular pattern which maximized hit chances. The Hedgehog was fired ahead of the destroyer escort, allowing

it to maintain sound contact during the attack. Unlike depth charges, which exploded at preset depths, Hedgehog bombs only exploded if they made contact. This allowed a ship attacking with Hedgehogs to maintain sound contact with its target until it was destroyed. In a skilled captain's hands they were deadly.

Task Group 22.3 formed in March 1944, when *Guadalcanal* was matched with Escort Division FOUR: Edsall-class destroyer escorts, *Pillsbury*, *Pope*, *Flaherty*, and *Chatelain*, and Gleaves-class destroyer *Forrest*. The Edsall-class vessels were diesel-powered, armed with three 3in guns; *Forrest* was a modern fleet destroyer, which would be detached in April to participate in Operation *Overlord*, the Normandy invasion. It was replaced by Buckley-class *Jenks*, a steam-powered destroyer escort, capable of 25 knots.

All five destroyer escorts had seen six months' service in escorting Atlantic convoys, although they had not served as a team prior to joining TG 22.3. *Guadalcanal* had conducted one war patrol prior to forming TG 22.3 that began on January 5, 1944, as part of TG 21.12. On that occasion its escorts were the destroyers *Alden*, *John D. Edwards*, *Whipple*, and *John D. Ford*. Old flush-deck destroyers, these four were survivors of the Asiatic Fleet which fought the Japanese in the Java Sea. While too old for front-line service in the Pacific, they were valuable Atlantic Ocean antisubmarine vessels.

The TG 21.12 cruise proved fruitful for *Guadalcanal*. Earlier hunter-killer groups built around Bogue-class carriers *Bogue*, *Card*, *Block Island*, and *Core* had cleaned out the easy pickings in the North Atlantic by January 1944. Losses had reduced the U-boat force significantly and the surviving U-boats were skittish about remaining surfaced during daylight hours. Despite this, *Guadalcanal* made a kill during this patrol. On January 16, tipped by a COMINCH report, *Guadalcanal* sent aircraft to the site of a reported submarine mid-ocean rendezvous. They launched in late afternoon, approaching the target location near sunset. There, two Avengers found U-544, a Type IXC/40 U-boat refueling two regular Type IXC boats, U-129 and U-516. U-129, waiting its turn to refuel, immediately dived. The other two, entangled with fuel lines, were attacked by the Avengers with both depth charges and rockets. U-544 was sunk and U-516 badly damaged; it barely made it back to France.

The destroyer escort was a warship built specifically to fight U-boats. It had top-notch sonar, good radar, and radio-direction finding equipment, state-of-the-art antisubmarine weapons, and an assortment of dual-purpose and antiaircraft guns which could be used against surfaced U-boats. (Author's Collection)

The attack resulted in the loss of four Avengers, not through combat but due to operational hazards. The Avengers not at the scene of the sinking

The Hedgehog was an antisubmarine mortar carried by destroyer escorts. It was a contact weapon. A round had to hit a submerged U-boat to sink it, unlike depth charges which exploded at a preset depth. This allowed a ship to maintain sound contact with its target if the Hedgehog volley missed, so it could renew the attack. (Author's Collection)

hurried over to "observe" the attack's result, ignoring calls to return to the carrier. They arrived at *Guadalcanal* at full dark. The pilots lacked night-carrier experience, and while four landed safely, the fifth went off the edge of the flight deck. It ended up stuck in a gun gallery fouling the flight deck, forcing the remaining three Avengers aloft to ditch.

Gallery carried three major lessons away from that patrol. The first was to put absolute faith in COMINCH intelligence reports – his major kill occurred because of one such report, and he implicitly believed them for the rest of the war. The second was the realization that U-boats were staying submerged during daylight hours, largely because of carrier task groups like his own. U-boats crews knew they were highly vulnerable to aircraft,

Sinking of U-515

On April 8, 1944, carrier-based aircraft from *Guadalcanal* and TG 22.3 caught U-515, a Type IXC U-boat on the surface near the Azores. The aircraft attacked, U-515 shot back with its antiaircraft guns and both bombs and antiaircraft fire missed. U-515 submerged to avoid further attacks by aircraft. The aircraft reported its position. Three destroyer escorts of TG 22.3 reached the spot later that evening forcing U-515 to remain submerged using up electricity and oxygen aboard the vessel. The next day at 1133hrs USS *Pope*, an Edsall-class destroyer escort, made an initial sound contact on the U-boat. Over the next three hours *Pope* and sister ships *Flaherty* and *Chatelain* tracked the contact. Finally, as Daniel Gallery described in his memoirs:

"At 1410 a well-placed [depth charge] salvo from the *Pope* jarred every frame in her hull, split her seams, and the jig was up. The sub blew all tanks, won the race against the incoming water, and suddenly broached to right between the *Pope* and the *Flaherty*. Hatches popped open and Nazis dove over the side while our destroyer escorts and planes blasted away with everything in their shot lockers."

This plate captures what happened next, as observed from someone on the bridge of *Pope*, the ship whose well-placed depth charges forced U-515 to the surface. *Chatelain*, close by U-515 when it surfaced is blazing away with every gun it has. *Flaherty*, a little bit further off, is not only firing its guns, but has fired a torpedo at U-515, which missed ahead.

They are firing at a deserted vessel by this point. The crew surfaced only to abandon U-515. The fire was so intense that 16 of the 60 men aboard U-515 when it surfaced were killed exiting the boat. The submarine sank after 15 minutes of intense fire.

The battle planted the seeds for the capture of U-505, two months later. Gallery, seeing how quickly the crew abandoned U-515, began wondering if they could have captured the U-boat instead of simply sinking it.

especially carrier aircraft, and they also knew carrier aircraft only operated during daylight hours. In regions outside the range of radar-equipped land-based patrol bombers, U-boats were safe from aircraft interference at night. They surfaced near dusk and remained surfaced during the night to recharge their batteries. They also conducted time-consuming operations like refueling and transferring torpedoes from external storage to their torpedo tubes during dusk and darkness.

Gallery realized an ability to conduct night operations offered more than the opportunity to attack surfaced U-boats. Pilots experienced in night landings could have avoided the bad landing that partially fouled *Guadalcanal*'s flight deck or have had the confidence to land on the remaining flight deck.

When Task Group 22.3 formed, Gallery initiated night operations. In cooperation with VC-58's commander, LtCdr Dick Gould, Gallery began developing a night-landing capability. Gould, who had experience with night carrier flight operations, was enthusiastic. TG 22.3 departed Norfolk on March 7, arriving at Casablanca on March 30. The moon would not be full, rising near sunset, until early April. Without moonlight they could not make visual contact with U-boats found by the Avengers' radar.

Conditions on the return to Norfolk were perfect. The pilots spent one week practicing night operations. Then on April 8, Gallery got another COMINCH report alerting him to a U-boat 40 miles from the Task Group. At sunset, four Avengers launched in search of the U-boat. It was U-515. One Avenger on this first flight reported seeing a surfaced U-boat, which dived before it could be attacked. More Avengers were launched and 30 minutes before midnight the U-boat was spotted and attacked. It submerged, undamaged, but aircraft continued to search the area, forcing U-515 to remain submerged.

Pope and *Chatelain* were detached to find U-515. They made a sound contact and launched Hedgehog and depth-charge attacks. One nighttime attack apparently damaged U-515. At dawn an Avenger spotted an oil slick, and dropped sonobuoys to track U-515. At 0630hrs *Pillsbury* and *Flaherty* were detached to join *Pope* and *Chatelain*. At 0640hrs, U-515 surfaced, only to be depth-charged by another Avenger. Shaken, it submerged again.

U-515 was trapped. Its batteries were low and four destroyer escorts were hunting it. At 1030hrs, *Pope* made sound contact, which would be maintained until U-515 was forced to the surface and sunk. The four ships continued making depth-charge and Hedgehog attacks for the next three hours. Finally, at 1405hrs, damaged, leaking, unable to control trim, and nearly out of battery power, U-515 surfaced. The destroyer escorts, an Avenger and two Wildcats poured fire into it as U-515's crew escaped into the water. At 1413hrs an explosion occurred inside U-515. Four minutes later, it sank, chased to destruction by TG 22.3.

The 44 survivors were brought aboard *Guadalcanal*. Two days later, a *Guadalcanal* Avenger spotted U-68 on the surface at night and sank it. Only one survivor was found. It was a successful patrol, and in the method of U-515's sinking, was planted the seed of capturing a U-boat.

THE PLAN

The idea of capturing a U-boat first occurred to Gallery in 1942, when he was in command of the US Navy's Fleet Air Base in Iceland. His command conducted antisubmarine patrols in Icelandic waters. They found U-boats, but a combination of inexperience and over-enthusiasm meant his pilots failed to sink the first three U-boats spotted. Exasperated, Gallery ordered the Officer's Club, where his fliers drank, closed until the unit sank a sub. Perhaps the deprivation motivated them and they finally focused on their jobs, or perhaps fortune finally favored the unit.

One of Gallery's PBY Catalinas escorting a convoy near Iceland spotted and attacked a surfaced U-boat. Its depth charges failed to sink the U-boat, but they crippled it, preventing it from submerging. The aircraft, flown by Lieutenant Hopgood, reported the U-boat's position to the convoy, which

The idea of capturing a U-boat was conceived in a late night, alcohol-fueled bull session attended by Gallery and the Catalina pilots under his command at Reykjavik, Iceland. These Catalinas are returning to the Patrol Plane Base Detachment at Reyjkavik in March 1942 during Gallery's tenure of command. (USNHHC)

dispatched a destroyer to finish the U-boat. Hopgood led the destroyer to the U-boat, and they found it alongside an Icelandic fishing trawler. The U-boat's crew boarded the trawler, scuttling the U-boat before the destroyer reached them.

The Officers' Club was duly opened. An all-night party there celebrated the kill. Soon after the sinking, at an evening Officers' Club session, Gallery and his officers discussed capturing a U-boat with a PBY. Gallery related the discussion in his memoirs: "… one night we got to letting our imaginations run riot and we said, 'Why couldn't we board and capture a submarine with a PBY aircraft?' You could land a PBY in fairly rough water—you couldn't get it off again, but you could land it. So then we'd send a message in to the base and tell them: 'We have captured a sub—send out and get it.'"

The alcohol-fueled planning session went on until 0100hrs when exhaustion set it, and (in Gallery's words) "we all decided to go to bed and sleep it off." Apparently the cold light of an Icelandic morning made the scheme a lot less enticing than it had seemed sitting around the O-club fireplace. After more sober consideration, plans to capture a U-boat with a PBY were abandoned. Regardless, the discussion started Gallery thinking about capturing a U-boat.

It was very much at the back of his mind when he left Iceland to take command of *Guadalcanal* in June 1943. He was certain *Guadalcanal* would be assigned to the Pacific theater, where most escort carriers were being sent and where Gallery believed the action was. He took *Guadalcanal* through

Guadalcanal (shown here in August 1944) was just out of its Pacific-coast shipyard when it was sent to the Atlantic to be part of a hunter-killer group. Lacking a true shakedown cruise Gallery improvised one. He conducted a variety of exercises that proved useful when U-505 was captured while traveling from San Diego to the Atlantic. This included towing a destroyer. (USNHHC)

its September 1943 commissioning and its preliminary cruise to San Diego, California, for orders.

At San Diego in October, Gallery learned *Guadalcanal* was being assigned to the Atlantic. He was bitterly disappointed. He figured "I had served my time in that ocean and should be eligible for parole to the Pacific, where the fighting was much more exciting than the monotonous grind of anti-submarine warfare." Only after the war did he realize "Our assignment to the Atlantic turned out to be a very lucky break indeed. Out in the Pacific CVE's were small cogs in a big machine and were used mostly as transports for hauling replacement aircraft. In the Atlantic they were the big fish in the pond. There was plenty of sea room, and the CVE's still had a big job to do in clinching the victory over the U-boats."

The voyage from San Diego to the Panama Canal constituted *Guadalcanal*'s shakedown cruise, as much as it had one. Gallery ordered a broad arrange of exercises to prepare his crew for war. He added an exercise not normally on the regular schedule: having *Guadalcanal* tow a destroyer. Postwar, Gallery wrote, "I didn't say the thing I had in mind here was eventually taking a U-boat in tow, but that is what I had in mind."

Gallery was probably not being wise after the fact. He knew a captain could survive being considered eccentric – within limits. Towing a destroyer fell within that eccentricity limit, but announcing his intention was to tow a U-boat exceeded it. Towing a destroyer was a good analogy for towing a submarine. It was a necessary preparation for Gallery's plan to capture a U-boat.

The exercise was laborious, technically difficult, and time consuming. Aircraft carriers were not expected to tow other vessels, and conducting a tow put both vessels at risk if attacked. Carriers, even escort carriers, were too valuable to risk to save a destroyer in that manner. However, the exercise proved invaluable when *Guadalcanal* actually had to take U-505 in tow under combat conditions.

In a safe zone (a passage from San Diego to Panama was about as peaceful as it got in 1943) it could be excused as a means of developing seamanship skills for a very green crew. (Of the 1,200 men aboard *Guadalcanal*, Gallery stated 1,000 were on their first sea assignment.) It fit Gallery's philosophy that you could get an inexperienced man to do things old salts would not because the new hands had not been around long enough to "know" something was impossible.

It would be months before Gallery revealed his vision to anyone else. His command had to demonstrate competence in destroying U-boats before he was ready to discuss capturing one. That took another three months, after *Guadalcanal*'s second and TG 22.3's first war patrol. Late in that patrol TG 22.3 made a sound contact with a U-boat. The destroyer escort *Pope* attacked it, damaging U-515 badly enough to force it to the surface, where the crew immediately abandoned it.

Gallery was surprised the U-boat had not come up fighting. However, it was in an impossible situation – there were three destroyer escorts and several aircraft present. At best, resistance *might* sink or damage

U-boats had three hatches on deck level, including this one. The deck level hatches were normally kept closed on patrol due to the danger of a boat getting swamped by ocean waves. If any of them had been opened when U-505 was abandoned, it would have sunk before TG 22.3 could have secured it. (Author's Collection)

one of the enemy destroyer escorts. Realistically, a damaged U-boat had little chance of hitting an undamaged, maneuvering destroyer or destroyer escort with a torpedo.

Moreover, by 1944 the deck guns U-boats carried were 20mm and 37mm guns intended for use against aircraft and incapable of seriously damaging a surface vessel. The only certain result of slugging it out on the surface was to ensure the death of the submarine's crew. Only a fanatic would fight under those circumstances. The smart move was to surface and immediately abandon ship.

There was, however, a best way to abandon a U-boat. Divide the crew into four groups each led by one of the U-boat's four officers. Before surfacing, distribute one party at each of the four hatches a U-boat had: fore and aft torpedo hatches, galley hatch, and conning tower hatch. Blow the ballast tanks for maximum buoyancy. When the U-boat surfaces, open all four hatches simultaneously and open the air valves on the buoyancy tanks. Immediately after this everyone exits the U-boat.

Using all four hatches divided the enemy's fire. Fifteen men could exit a hatch in well under two minutes. Unless it was one of the few U-boats with a forward deck gun, there were no weapons near three of the four hatches. Only those exiting the conning tower hatch were likely to be targeted by an Allied warship intent on suppressing an enemy attack. Even then, many ships would hold fire once it became apparent no resistance was being offered.

U-boats carried scuttling charges, capable of cracking the pressure hull, ensuring the vessel sank. Anyone aboard when they went off lacked time to exit before the U-boat sank. They had to be set on timed fuses, to explode with no one aboard. Scuttling charges were installed when the boat was built. The older the boat, the less reliable they became. The charges and the apparatus to detonate them were in the bottom of the boat, constantly exposed to salt water. Wires leading to the charges broke, or timers failed, rendering the attempt to fire them useless. Or the explosive in the charge or blasting cap deteriorated until it was harmless.

Opening the air valves was more certain to sink a U-boat. They ensured the U-boat would sink within five minutes, usually too swiftly for a salvage party to stop it from sinking. Three hatches were on the deck. Once the water reached the deck the U-boat would flood and sink. U-515, led by U-boast ace Werner Henke, was abandoned in a manner similar to this. His crew all piled out at once. However, to work it had to be organized before the U-boat surfaced.

Once organized, the crew was committed to abandonment, and could not attempt resistance, as this slowed evacuation. Worse, resistance provided an opportunity for the U-boat to be captured, because if they did chose to slug it out at the surface, scuttling preparations, such as opening the air valves and setting scuttling charges could not be done until it was clear the battle was lost. By then things were happening too quickly to organize a scuttling.

Gallery felt U-515 could have been captured, *if* the Task Group had been ready. If boarding parties had been organized, and if pre-arranged plans had been in place, he wrote, "We might have made naval history by boarding and capturing U-515." On the trip back to Norfolk he discussed the idea during wardroom sessions after the sinking. Gallery decided the objective of the third cruise would be to tow a U-boat to Norfolk.

When TG 22.3 arrived at Norfolk they began preparing for the next cruise. They held debriefings examining the results of the prior cruise and planning sessions for the upcoming one. During the departure conference for the third cruise, Gallery announced his intention to capture a U-boat if the opportunity arose. He then outlined the conditions in which a capture would be attempted.

U-515 ablaze after being attacked by the ships and aircraft of TG 22.3 when it surfaced and was abandoned by its crew. It remained afloat for 20 minutes, despite intense gunfire aimed at it. The action left Gallery wondering if it would have been possible to capture it had he been prepared to do so. (USNHHC)

Captain Henri H. Smith-Hutton (shown aboard *Iowa* in 1943) had been a shipmate of Gallery when both served aboard the battleship *Idaho* in the 1920s. In April 1944 he was Assistant for Combat Intelligence in the COMINCH Intelligence Atlantic Section, and provided Gallery with information critical to U-505's capture prior to TG 22.3 starting its third war patrol. (USNHHC)

He assumed the only reason a U-boat would surface while under attack was because it was damaged, so the crew could escape. He wanted to use that. There was no reason to fire at the submarine to sink it, its own crew would be doing that as part of the abandonment. No heavy guns which could cause structural damage were to be fired at the U-boat.

Instead, any fire directed at the U-boat would be done to create panic and increase pressure to abandon the vessel. Destroyer escorts were to use only antiaircraft weapons, their 20mm and 40mm guns, against the U-boat. These would suppress any fire by the U-boat's deck guns and encourage the crew to leave the U-boat quickly. With luck, in the panic the crew would fail to take every appropriate step to scuttle the boat.

The closest destroyer escort would dispatch a whaleboat with a boarding party. Once the whaleboat reached the U-boat, its crew would board the U-boat. Two men would enter armed with Thompson submachine guns to deal with any remaining Germans. Once the submarine was secure, part of the party would counter any efforts to sink the U-boat. They were to close any valves allowing water in or air out, and disable the scuttling charges. They were also to deal with any obvious booby-traps or German sailors within the U-boat who might resist the salvage attempt.

The rest of the party would grab the coding machine U-boats were known to carry, any likely electronics, and any papers they found in the control room, radio room, and captain's cabin. They were to be bagged up and bundled out of the U-boat to the whaleboat. While Gallery wanted to tow a U-boat into an Allied harbor, he knew many things could prevent that. Even if the U-boat subsequently sank, some intelligence, especially the coding machine, would be saved. Once the U-boat was under control, *Guadalcanal* would send a larger boarding party, with engineers (including *Guadalcanal*'s engineering officer, Earl Trosino) and other technicians to assist salvage efforts.

Gallery placed high importance on recovering the coding machine. He knew U-boats sent and received many signals, and his logical conclusion was that possession of a coding machine would enable the Allies to read the German signals. In Gallery's words, "This would be like sticking your head into the opponent's huddle in a football game."

Gallery was absolutely correct. What Gallery did not know was the Allies already *were* reading U-boat messaging virtually real-time in 1944.

A project known as "Ultra" had already cracked the Enigma coding system. It was the closest-held secret of World War II, and Gallery was not read in on it.

Once the U-boat was stabilized, no longer in danger of sinking immediately, the salvage party would take steps to ensure the U-boat remained afloat long enough to reach port. This included "dewatering" (pumping out excess water) the boat, plugging any leaks, and restoring the vessel's electricity and mechanical systems. To further the operation Gallery ordered each ship in the task force to organize a boarding party with a whaleboat ready to lower.

The composition of the boarding party was left to each ship's captain. The whaleboats had a crew of three: an engineer, who ran the motor, a coxswain who steered, and a crewman, known as the boat hook, who handled the lines. They remained in the whaleboat.

Each destroyer escort boarding party had nine men: an officer to command, and eight enlisted men. The enlisted personnel were chosen for seamanship and technical skills; a bosun's mate served as second-in-command. Personnel such as gunners, electricians, torpedomen, machinists, motor machinists, radiomen, and signalmen filled the rest of the party. The idea was to ensure the skills needed to save the submarine were available, with people capable of recognizing problems in an unfamiliar environment and resolving them.

The parties were drawn up while TG 22.3 was still in Norfolk. While in harbor, daily "boarding drills" were held and the cry of "Away Boarders" was raised. The boarding party crews dropped their regular activities, and rushed to their whaleboat, which would be lowered into the sea. A trip to a "U-boat" was simulated by taking the whaleboat around the destroyer escort. To observers it probably seemed like one of Captain Dan's unconventional exercises intended to keep his crews employed while in harbor.

They were not, however, completely unprepared for the actual boarding since Gallery scoured up every bit of information he could find about U-boats. Captain Henri Smith-Hutton was Assistant for Combat Intelligence at COMINCH in spring 1944. He and Gallery served as junior lieutenants aboard the battleship *Idaho* together during Gallery's black shoe days. Gallery discussed his plan to capture a U-boat with Smith-Hutton, and he in turn showered Gallery with technical information.

This included interior plans for Type-VII and Type-IX U-boats and drawings detailing the systems aboard the U-boats vital to keeping a U-boat running (and afloat). In turn, this information was shared among the boarding teams allowing them to familiarize themselves with a U-boat's interior and its vital systems. It allowed them to board with knowledge of the approximate locations of scuttling charges and their wiring, the ballasting and flotation system and seacocks allowing a U-boat to be flooded.

Gallery and TG 22.3 departed Norfolk on May 15, 1944. This time they planned to come back with a U-boat. They continued adjusting the composition of the boarding parties throughout the patrol, up until they finally got an opportunity to execute their plan. But they were ready. All they needed was a chance.

THE RAID

Opportunity

On March 16, 1944, U-505 departed Brest on its final war patrol. It departed Brest rather than Lorient because it ended its eleventh war patrol early to rescue 33 survivors from German torpedo boat T-25, sunk by British cruisers in the Bay of Biscay. Overcrowded with survivors, it returned to Brest to unload its passengers, where U-505 was damaged in a freak accident. A torpedo boat survivor fell on U-505's helmsman as it approached the dock and the U-boat brushed the concrete pier, damaging the forward diving plane. Repairs took six weeks.

Although much has been written about how demoralized U-505's crew was after Zschech's suicide, this was unlikely. Zschech was an unpopular captain, who was not missed, and the crew were professionals. Bad captains

The officers of U-505 on its twelfth and final war patrol. Left to right: Second Watch Officer Kurt Brey, First Watch Officer Paul Meyer, Captain Harald Lange (note the white hat cover), Surgeon Friedrich Rosenmeyer, and Engineering Officer Josef Hauser. (Author's Collection)

were part of the sailor's lot. Lange, at 40 the oldest man to command a U-boat on a war patrol, was an ideal replacement. He was an outstanding leader and a first-class seaman. The crew quickly rallied around him, the rescue of T-25's survivors cementing his reputation among his men.

U-505 left Brest headed for a patrol area south of Africa's bulge. It duplicated the area of its successful second war patrol, but things had changed in two years. When U-505 left Lorient on February 11, 1942 there had been only 58 U-boats on patrol. There were 81 on March 16, 1944, but that was down from 100–125 at sea on a typical day between July 1942 and April 1943. The Bay of Biscay, which had to be crossed, was under perpetual Allied aerial surveillance. The Allies had a large air presence operating out of Gibraltar, Casablanca, and the Azores, and a smaller one in Freetown. A US Navy carrier group was almost certainly patrolling the ocean between the African shore to west of the Azores. Where U-505 made 80 percent of its second war patrol surfaced, it would conduct this one mostly submerged, surfacing only to make a fast dash across dangerous waters or to recharge its batteries. It took a month for U-505 to reach its patrol area.

U-505 spent a frustrating six weeks off the African coast. During that time it ranged from Dakar to Liberia's eastern boundary. The sea was empty of ships. Only once during their first month off Africa did they spot a ship, a 9,000-ton Portuguese passenger liner. Portugal was neutral, so they let it pass, using it to test a newly fitted radar set. It failed to detect the vessel.

Not until May 10 did they spot a target, a 10,000-ton British freighter, but U-505 could not catch it. Their chase attracted the attention of a British Hunt-class destroyer. It refused to close within range of a GNAT, content to keep U-505 from attacking its charge, and the submarine broke off the pursuit. Soon after, U-505 discovered its Naxos radar detector was not working either. Other mechanical systems began failing. Finally, on May 20, it began a slow return to France.

The hunt

Five days before U-505 began its return to France, Task Group 22.3 departed Norfolk for its Atlantic patrol. It had a new air group aboard, VC-8. After they flew aboard, Gallery spent the first ten days familiarizing them with night operations, as he had earlier with VC-58.

Gallery believed he had sunk two U-boats on each of his prior two cruises. (He had actually sunk just one on the first one, crippling a second.) To top that achievement, this time his goal was to bring a U-boat back to an Allied port, with the Stars and Stripes flying over the Nazi swastika. He had obtained the cooperation of Combat Intelligence at COMINCH, including a promise from Kenneth Knowles to provide up-to-date position estimates on U-boats in TG 22.3's vicinity.

He needed all the help he could get. By mid-May U-boats were approaching endangered species status. While 81 U-boats were on combat patrol when U-505 sailed, by mid-May there were only 65. The number would fluctuate between 58 and 81 during the period but many of these were well out of *Guadalcanal*'s patrol area. On any given day there were

The composite squadron aboard an escort carrier in an antisubmarine task group was independent of the carrier, assigned as available. VC-8 was the on-deck unit when TG 22.3 sailed in May. It flew out of Norfolk Naval Air Station (shown) to land aboard *Guadalcanal,* already at sea. (USNHHC)

typically no more than five or six U-boats transiting the area in which TG 22.3 was responsible.

Lange had sent a contact report from U-505 on May 14, coincidentally the day before TG 22.3 sailed. It was intercepted by Knowles's intelligence team. Before then, U-505 was one of three U-boats patrolling "close to the coast in the Gulf of Guinea." U-505's location was included on the May 15 location list. This used a position based on a direction-finding fix on U-505. Thereafter the tracking room in Washington DC began plotting U-505's travels. Their positions, while not completely accurate, were 50 percent better than Dönitz's headquarters own estimates of its position. Between May 17 and 20 the position estimate reported U-505 "will return May 21." When U-505 decided to return to France, COMINCH began feeding those estimates to Gallery.

The May 23 dispatch included U-505's specific position, but not its identity. If the Germans discovered the reports, U-boat positions could be explained away as derived from radio direction finding. The Kriegsmarine knew about RDF, and would not be alarmed about U-boat positions being detected that way.

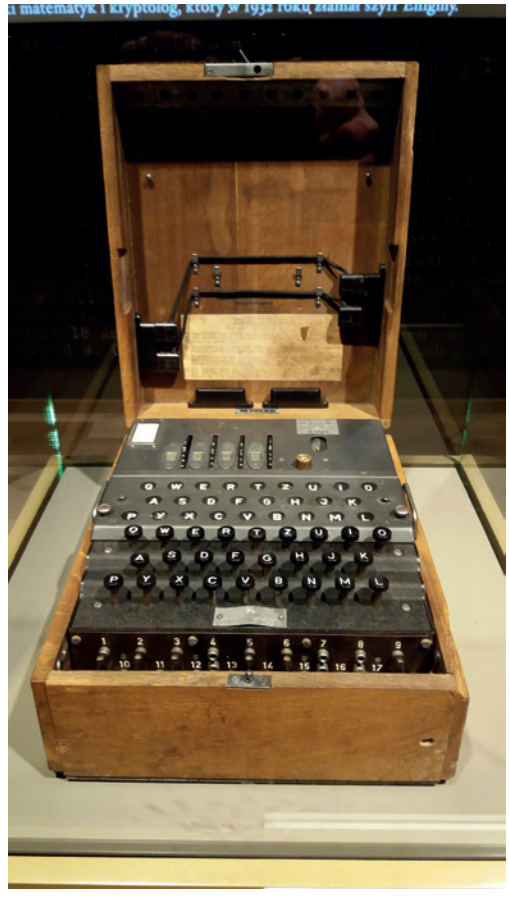
RDF did not provide the identity of a U-boat. Only codebreaking could yield that. Although – or rather because – the Allies had been deciphering U-boat messages for over a year by May 1943, they went to extreme lengths to conceal that from the Germans. It was a closely held secret, and would remain closely held for years after the war ended.

Gallery was not read in to the Ultra secret and was unaware of it, and his seeking to capture a U-boat with its code machine might compromise the secret if he succeeded. Cooperating with Gallery's effort seemed the best

way to guard the Ultra secret, however. To order him to drop the effort required awkward explanations of *why* COMINCH did not want a U-boat captured. The intelligence group almost certainly viewed the odds of actual success so low as to not be worth worry. Gallery's plan would only be executed if a U-boat were first abandoned. It required incredible good fortune to prevent the U-boat from sinking before being secured.

Gallery heartily welcomed the position reports. Even as late as the last week of May, U-505 was one of three Nazi U-boats homeward bound from Africa. TG 22.3 reached the Azores by May 22 and began hunting U-boats. Finding targets proved as frustrating for TG 22.3 as it had been earlier for U-505. Gallery later wrote: "We flew around the clock day after day and night after night without even a false alarm for our efforts." U-boats were avoiding areas likely to be patrolled by escort carrier groups. Despairing of finding a U-boat near the Azores, Gallery switched his area of operations to the Cape Verde Islands. It proved as barren of U-boats as the Azores. He searched for three weeks, coming up empty.

A second escort carrier group was in the Eastern Atlantic. Headed by Bogue-class *Block Island* it was patrolling around the Canaries, 800 nautical miles south of TG 22.3. On May 29 it found a U-boat. Rather, U-549, a Type IXC/40 boat, found *Block Island*, slipped past the screen, and torpedoed the carrier. Hit twice, *Block Island* sank. Six men died when the torpedoes struck; the surviving 951 men were recovered by the escorts. In turn, destroyer escort *Eugene E. Elmore*, a member of the screen, sank U-549 with a Hedgehog attack. There were no survivors.

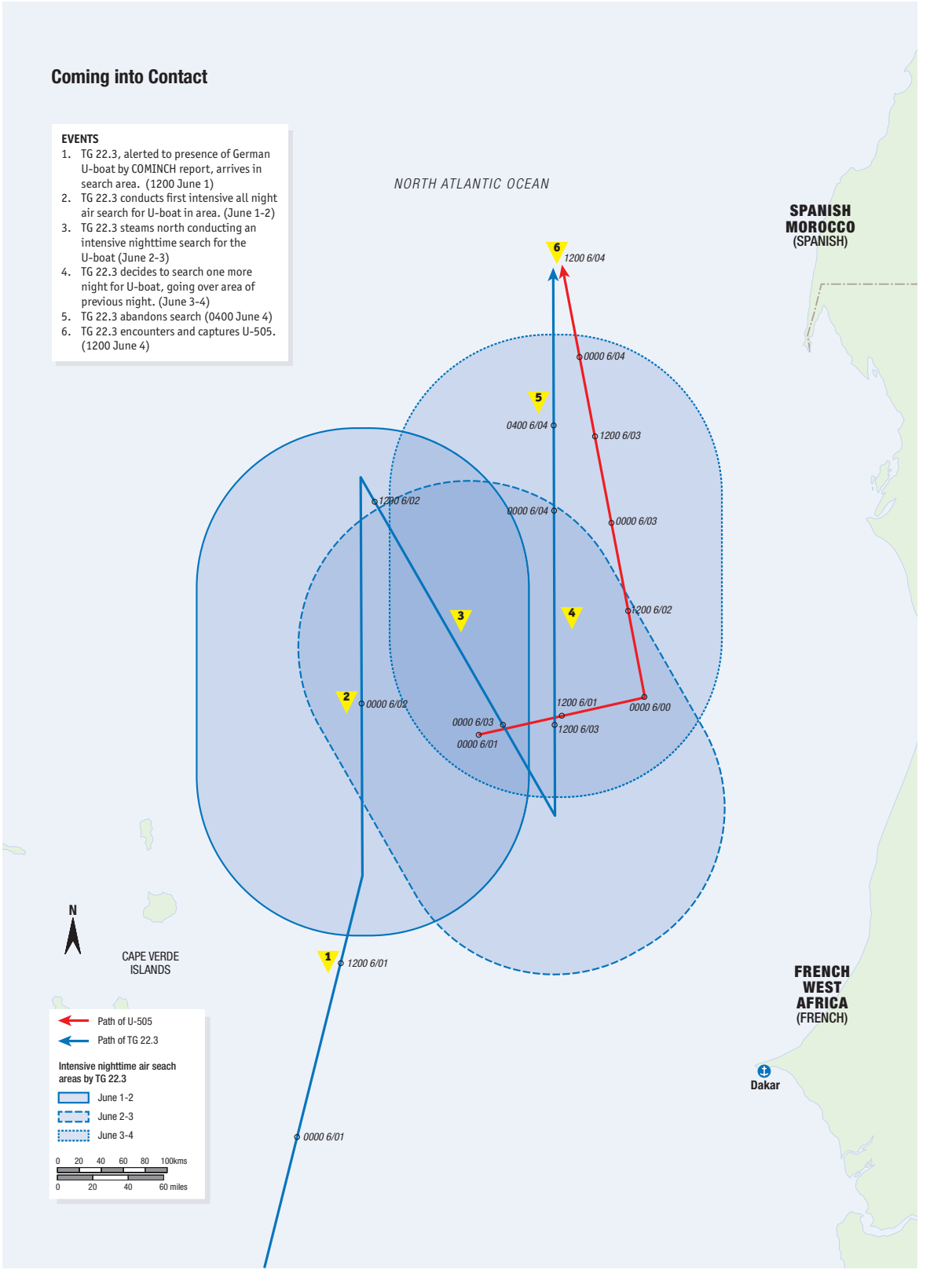


A four-rotor Kriegsmarine Enigma machine (now on display at the Museum of the Second World War in Gdańsk, Poland). Obtaining an Enigma machine was one of Gallery's motivations for capturing a U-boat. Since he was not read into the Ultra secret, he did not know the Allies already were reading messages coded on them. (Wikipedia, photo by LukaszKatlewa, CC BY 3.0)

Although *Block Island* was the only escort carrier sunk during antisubmarine duty, the sinking served to remind *Guadalcanal* and TG 22.3 of the dangers they faced. It also increased Gallery's desire to get another scalp, as he termed sinking or capturing a U-boat. He therefore seized on the intelligence about the U-boat due to cross his operational area to conduct a methodical search for it.

Meanwhile, Lange was taking U-505 north. He had swung between the Cape Verde Islands and Africa as *Guadalcanal* and Task Group 22.3 searched for it south of the Cape Verde Islands. Lange was moving into an area heavily trafficked by aircraft. In addition to maritime patrol aircraft searching for U-boats he was passing under the flight path of aircraft ferrying to the European theater via South America and Africa. This meant more aircraft were being spotted. Since any aircraft was a potential attacker, U-505 kept diving to avoid them which made recharging batteries difficult, especially as U-505 lacked a Schnorchel.

Coming into Contact


EVENTS
1. TG 22.3, alerted to presence of German U-boat by COMINCH report, arrives in search area. (1200 June 1)
2. TG 22.3 conducts first intensive all night air search for U-boat in area. (June 1-2)
3. TG 22.3 steams north conducting an intensive nighttime search for the U-boat (June 2-3)
4. TG 22.3 decides to search one more night for U-boat, going over area of previous night. (June 3-4)
5. TG 22.3 abandons search (0400 June 4)
6. TG 22.3 encounters and captures U-505. (1200 June 4)
NORTH ATLANTIC OCEAN
SPANISH MOROCCO (SPANISH)
6
1200 6/04
0000 6/04
5
0400 6/04
1200 6/03
1200 6/02
0000 6/04
0000 6/03
3
4
1200 6/02
2
0000 6/02
1200 6/01
0000 6/00
0000 6/03
1200 6/03
0000 6/01
N
CAPE VERDE ISLANDS
1
1200 6/01
FRENCH WEST AFRICA (FRENCH)
Dakar
0000 6/01
Path of U-505
Path of TG 22.3
Intensive nighttime air seach areas by TG 22.3
June 1-2
June 2-3
June 3-4
0 20 40 60 80 100kms
0 20 40 60 miles

As May 30 ended, U-505 was due east of the Cape Verde Islands. It had made an unknowing end run around TG 22.3. U-505's batteries were drained and the air within the submarine virtually unbreathable. Since aircraft seemed to be around regardless of time of day, Lange decided to run surfaced in the morning. The skies were clear with only high cirrus. This meant U-505 could be spotted by aircraft, but U-505's lookouts would more easily spot approaching aircraft early.

Lange's gamble was based on the calculation that no one expected a U-boat to run surfaced during daytime. He believed the Allies would let down their guard. His gamble worked, as he was able to recharge his batteries. He would make sprints on the surface, followed by a deep dive. While below he conducted a hydrophone sweep searching for both hunting warships and potential targets. He was finding neither. After a time submerged, with the seas clear, he resurfaced and repeated the surface run, with another surfaced sprint.

Escort carrier *Block Island* was torpedoed and sunk by a U-boat while part of a hunter-killer group similar to *Guadalcanal*'s five days prior to encountering U-505. While *Guadalcanal*'s group was operating off the Cape Verde Islands, *Block Island* was in the Canary Islands. The realization an escort carrier could become a victim of its prey colored the subsequent battle. (USNHHC)

Meanwhile, TG 22.3 was hunting the U-boats COMINCH reported returning from the Gold Coast of Africa. They received a daily update of their presumed positions and, though the Task Group was low on fuel, they were intent on finding their elusive prey. They had indications a submarine was nearby. In Gallery's words, "disappearing radar blips, and noisy sonar buoys, and things of that kind, which you can't be sure of but later on we were sure of them. This went on for a week." On the evening of June 2–3, *Guadalcanal*'s Avengers made numerous radar contacts with *something*; the sonobuoys they dropped detected submarine propeller noises.

Gallery set up an aircraft search pattern centered on the 20th meridian. Aircraft conducted continuous, overlapping nighttime air searches 100 miles on either side of the meridian and 250 miles along it. It was constructed such that any surfaced U-boat traveling through the area would have been detected. Nothing was found.

In part this was because Lange had flipped standard U-boat procedures, running mostly submerged at night, while recharging his batteries with daytime surface sprints. On June 2 he noted the Allies were running almost continuous nighttime antisubmarine patrols around U-505. He suspected he was caught in the net of an escort carrier group. He needed to escape it to reach Lorient safely.

He decided the hunter-killer group was west of U-505. To evade on June 3 he decided to take U-505 east, assuming the task group chasing him

Guadalcanal carefully combed the waters off Africa searching for a U-boat transiting the area from the dusk of June 2 through dawn of June 4. The searching aircraft were carefully coordinated and the information they gathered examined in *Guadalcanal*'s Combat Information Center. They found plenty of clues that a submarine was in the area, but could not locate it. (USNHHC)

was west of U-505. In actuality they were well east of U-505 and Lange's course drew U-505 closer to the US ships. The good news for Lange was U-505 was north of TG 22.3, futilely searching the German submarine south of its actual position. Luck was hovering over U-505's conning tower. Then, abruptly, luck abandoned U-505.

By June 3, TG 22.3 was running low on fuel. Earl Trosino had been warning Gallery. On the morning of June 3 he told Gallery "By God, we'd better get into Casablanca or we are going to run out of fuel." Trosino, a reservist, was an excellent engineering officer. Prewar, he had been chief engineer on a Sun Oil tanker. Gallery had every confidence in him and later wrote, "Knowing the chief, I knew he always kept a little bit up his sleeve, so I kept pushing him and pushing him."

At a conference on the afternoon of June 3, Gallery decided that the contacts made the previous night had been authentic. Trosino told Gallery, "This is the last night we can possibly operate." Gallery decided to conduct one more night of searching. TG 22.3 had moved north the previous night. On June 3–4 it moved south, retracing its previous search. This time there were no contacts. Gallery realized they had missed the U-boat.

That morning Trosino told Gallery fuel was so low if they did not immediately head for Casablanca, they risked running out of fuel before making landfall. Trosino told Gallery (a devout Catholic), "You better pray hard at Mass this morning Cap'n, you used more oil than I figured on last night." *Guadalcanal* was so low on fuel Gallery considered the possibility he would have to call a tug to tow *Guadalcanal* into Casablanca, not a career-enhancing action.

Task Group 22.3 knew there was a U-boat in the area. *Pillsbury* and *Guadalcanal* captured bearings from U-505's radio broadcast at 0520hrs

(GMT), an hour before sunrise. At 0629hrs a *Guadalcanal* radioman picked up a U-boat transmission at either 024 degrees or 204 degrees. (It could have come from either direction. A second bearing was required to determine which was correct. Ironically, by this time, TG 22.3 was moving north on a roughly 24-degree bearing.) The U-boat looked like it was going to get away, because the task group lacked the fuel to hunt it down.

Missing the U-boat was a bitter pill to swallow. Among the things Gallery dealt with as part of his morning routine was a review of the Plan of the Day. A mimeographed sheet printed daily, it set forth the schedule for the day with notes and orders for the day's routine. One section of the plan handed Gallery that morning was headed "Crew for Captured Submarine," part of the plan to take a U-boat as a prize. Gallery had continued tinkering with his plan to capture a U-boat throughout the voyage. This section of the plan detailed the members of *Guadalcanal*'s crew intended to keep the U-boat afloat once it had been secured by a party from one of the destroyer escorts. Virtually everyone aboard *Guadalcanal* volunteered.

The list presented to Gallery contained 20 names who, as Gallery put it, were the 20 "deemed best qualified – or, perhaps least unqualified, would be more accurate" to salvage a U-boat. According to Gallery, "We did find one man on the ship [*Guadalcanal*] served in a U.S. submarine and who immediately became our submarine 'expert.' He had been a yeoman on an S-boat, and could tell us anything we wanted to know about the paper work or filing system on a submarine!"

Gallery noted, "I scanned this item on the Plan of the Day somewhat wryly and thought 'Maybe we'll have better luck on the return voyage.'" At daybreak on June 4, Gallery turned the task group north, steaming for Casablanca at best economical speed. The course took him directly over the path of U-505.

As June 4 dawned, life aboard U-505 was following routine. For the crew it was a day like previous ones, and hopefully like the ones to follow. Oxygen and battery power were low. Lange surfaced briefly early in the day, spending

Boarding the U-505

In order to board U-505 *Pillsbury*'s motor whaleboat had to first catch the U-boat. U-505 was plowing through the water at a sprightly 7 knots. Regardless, Coxswain Phil N. Thrushheim, brought his boat alongside the racing U-boat, while the whaler's boat hook, Seaman 1st class E. J. Beaver managed to tie a line to the submarine. To some observers it must have seemed the whaleboat had harpooned a whale, while others, including Captain Daniel Gallery, were reminded of a cowboy lassoing a steer – or even a rodeo cowboy trying to ride a bucking bronco.

Tying on was only part of the job, though. The nine-man boarding party had to get onto U-505. Doing this required they leap from the tossing whaler to the partially swamped deck of U-505, and then clamber onto the *Wintergarten* antiaircraft gun platform and from there onto the bridge. They had to do this laden with weapons and equipment. The party was armed. Everyone had a M1911 .45cal pistol on a belt. At least two, and possibly more, boarded carrying Thompson submachine guns. The famed "Chicago Piano" would efficiently clear a U-boat chamber. Some carried tools that might be needed to close valves or unstick control wheels, and they carried sturdy canvas mailbags in which to store their finds.

This plate captures the process of boarding U-505. First aboard would have been LJG Albert David, who commanded the boarding party, leading by example. Close behind him are two other men who will enter U-505 with David, RM2/c Stanley E. Woowiak and TM2/c Arthur K. Knispel, toting tommy guns and ready to clear the decks with them if necessary.

The rest of the party following: MOMM1/c Zenon Lukosius, a small fast man in the lead, followed closely by CMM George Jacobson, SM3/c Gordon Hohne, BM2/c Wayne Pickles, Jr, GM1/c Chester Mocarski, and EM2/c William Riendeau. They would have been spaced out, timing the jump to U-505 carefully. But they would have known they were making history.

Harald Lange knew a carrier group was searching for him, so he remained submerged as much as possible. This minimized the chances of being found by aircraft as they lacked sensors for an adequate underwater search. Air aboard U-505 grew so foul crew not on watch were ordered to remain in their bunks to reduce oxygen consumption. (Author's Collection)

four hours on the surface to recharge batteries. During this time he sent the radio report to headquarters picked up by *Guadalcanal* and *Pillsbury*. He then submerged, holding 100ft below the surface and moving north on its electric motors at 2 knots. Lange began hoping he had shaken off the carrier group pursuing him. He planned to make a long surface run during the night of June 4–5 to put distance between U-505 and the carrier group.

U-505 badly needed a run on the surface. Conditions aboard U-505 were miserable: it was hot, with condensation dripping off metal fittings, and the air was fetid and foul due to the hours spent underwater. To save oxygen, off-duty men were ordered to remain in their bunks and rest. A seven- or eight-hour surface run would fix these problems, and a long stretch with diesels running would restore U-505's drained batteries. Better still, it would allow the U-boat to be completely ventilated as fresh air would replace foul. It even offered some hope for drying out the U-boat within the pressure hull.

Unfortunately, U-505's shift east towards Africa placed it along the course of TG 22.3 as it followed the shortest path to Casablanca and fuel. "Best economical speed" brought the Task Group 11 nautical miles closer to U-505 every hour.

A little after noon on June 4, the two paths converged. TG 22.3 literally overran U-505 and the submarine's hydrophone operator detected propeller noises, a faint propeller wash of a slow-moving group of ships. Lange's first thought was that they might have found a convoy. Possibly his patrol would not be a total loss. Maybe they could sink a ship or two. He ordered U-505 to periscope depth.

The clocks were set an hour earlier aboard TG 22.3. At 1100hrs two Wildcats were in the air providing close escort. They were due to be relieved at 1120hrs by two more, and *Guadalcanal* was preparing to launch them. The five destroyer escorts were in their normal cruising formation, in a line 4,000yds ahead of the carrier, with the escorts 2,500yds apart.

At 1109hrs *Chatelain*'s sonar operator reported a possible sound contact to *Chatelain*'s captain, Lieutenant Commander Dudley S. Knox. (His father, Commodore Dudley Wright Knox, was a prominent naval historian. From 1921 through 1946 he ran what became the Naval History and Heritage Command.) At 1110hrs, Knox reported the "Investigating possible sound contact" to *Guadalcanal*. Knox turned towards the contact, and slowed *Chatelain* to 10 knots. At 1112hrs a target 600yds away was captured on the range recorder. The possible contact was upgraded to a submarine by the ship's ASW officer. Relaying this news to *Guadalcanal* by voice radio, *Chatelain* moved to attack.

Aboard U-505 Lange was sweeping the horizon with his periscope. The crew heard an odd metallic clatter on the deck. One man aboard U-505 said it sounded like "A scraping sound, as if someone were dragging a long chain cable across U-505's deck." Then Lange saw something in the periscope. "Destroyer," he called. It was *Chatelain*, barreling down on the U-boat. The hunt was over, and the battle beginning.

Capturing a U-boat

Chatelain's signal set many things in motion. One minute after *Chalelain*'s "possible sound contact" report, Gallery ordered the commander of Escort Division FOUR, aboard *Pillsbury*, to "Take one other escort and assist U.S.S. *Chatelain*." A minute later, as *Chatelain* sent the message confirming it had a submarine, *Pillsbury* and *Jenks* left formation to assist *Chatelain*.

As this was happening *Guadalcanal* was preparing for launch operations. With a U-boat within 4,000yds of *Guadalcanal*, Gallery realized he was potentially in the same position *Block Island* had been a week earlier; the old lady in a barroom brawl. He needed to get *Guadalcanal* out the way of the destroyer escorts who needed elbow room to deal with the contact. Launch operations were postponed and *Guadalcanal*, with *Flaherty* and *Pope* escorting, turned away from the contact.

The launch of the two Wildcats relieving those already in the air was canceled. Instead, the ready hunter-killer team, one Avenger and one Wildcat, was spotted for launch. This pair of aircraft was on the deck, armed and fueled, ready for launch if a U-boat were found.

Chatelain was going to General Quarters, barreling in on U-505. It got too close on its initial run, the range too short to fire its Hedgehog. At 1113hrs *Chatelain* lost contact with the submarine at 100yds. It broke away, to regain contact and make another run at the U-boat.

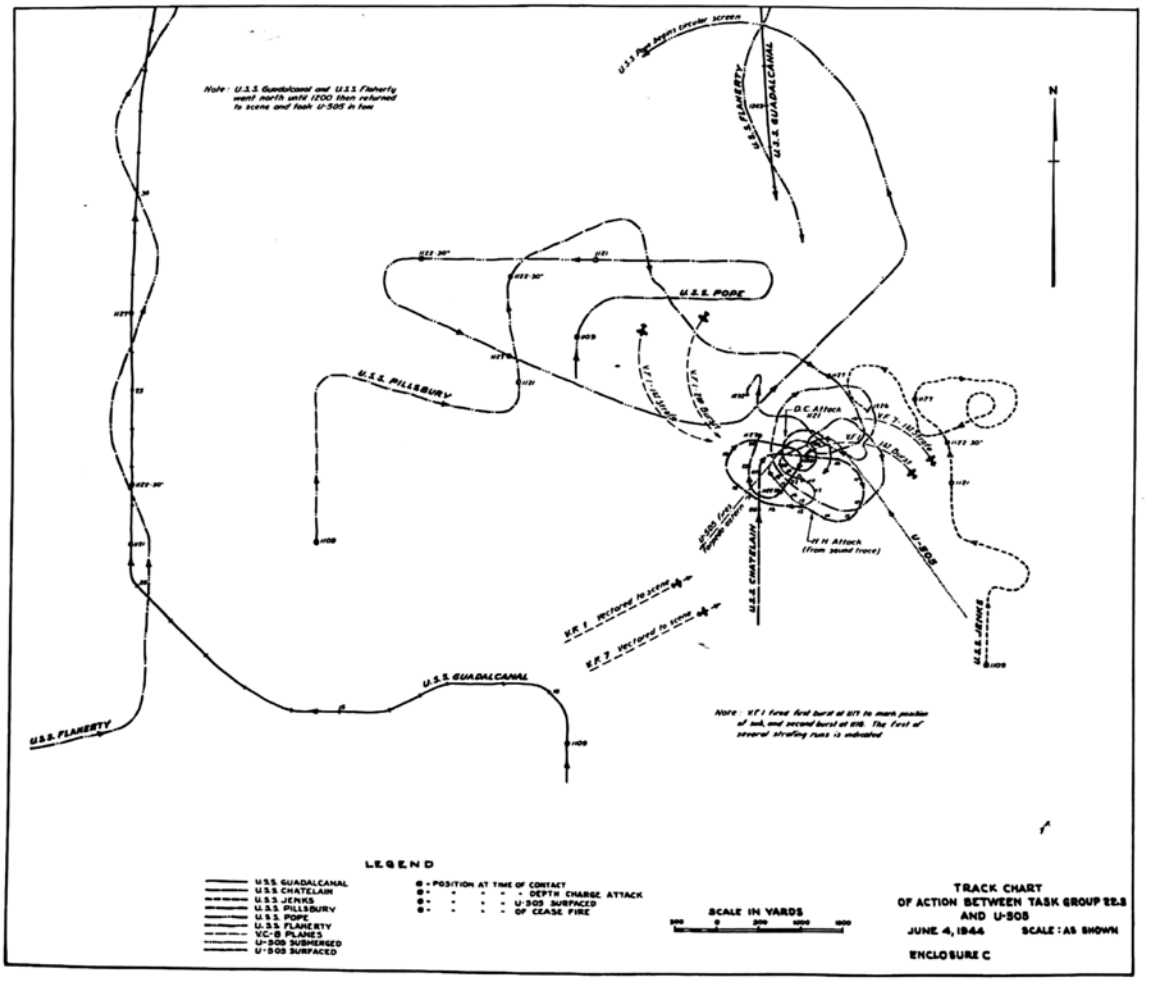
TG 22.3 found the U-boat they had been hunting by accident. They ran over the submerged U-505 while trying to reach Casablanca for fuel. *Chatalein* (shown) picked up a submarine contact on its sonar, confirmed it was a U-boat and immediately attacked. (USNHHC)

Chatelain turned right, and regained contact with U-505 on its starboard quarter at 200yds. It opened the distance to 700yds, came around closing range and fired a full pattern of Hedgehogs. The fathometer was engaged – it detected no bottom. The Hedgehogs sank in a deadly ring around where *Chatelain* thought the U-boat was.

No explosions were heard, indicating *Chatelain* had missed its target. Perhaps it was buck fever, or perhaps *Chatelain* had misjudged the U-boat's direction. When sonar indicating the target was only 50yds away, it lost contact. *Chatelain* moved into the center of the Hedgehog ring and dropped a dye marker to mark the contact's position.

The water was freakishly clear that day. Two Wildcats, code-named Frisky One flown by Lieutenant Wolffe W. Roberts and Frisky Seven with Ensign John W. Cadle Jr., had been preparing to land on *Guadalcanal* a few minutes earlier. Instead, they joined in the hunt. The contact, as marked by *Chatelain*'s position was three miles behind them, and they turned to fly over the contact. They could see the submerged U-boat 40ft deep in the water, and Frisky One reported sighting a submarine running submerged.

This track chart was included in the after-action report on the capture of U-505. It reconstructs the movements of all ships and aircraft involved in the battle, and the presumed path of U-505. As can be seen, despite the brevity of the action, there were a lot of independently moving pieces. (Author's Collection)



Three minutes after spotting the U-boat, and observing *Chatelain* overrunning the target, the Wildcat fired into the water to mark the position of the U-boat. U-505 was too deep for the bullets to do any damage, but the .50cal bullets clattered as they landed on its deck, creating the sound its crew interpreted as a chain being dragged across the deck. At this point the crew, including Lange, was unaware they were under attack.

Aboard U-505 Lange was greeted by the periscope image of an onrushing destroyer escort, which he identified as a destroyer. From the standpoint of capability there was little difference, though a destroyer escort, optimized for antisubmarine warfare, was probably more dangerous than a destroyer. He ordered an acoustic torpedo fired at the destroyer. Three were loaded in torpedo tubes, two in the stern tubes and one in the forward tube. One of the stern tube torpedoes was fired. Another sweep of the periscope revealed two more enemy destroyers, a carrier in the distance and two aircraft above him.

A *Zaunkonig* had a range of 6,000yds, but the homing mechanism did not activate until the torpedo traveled 425yds. By the time the torpedo was launched, *Chatelain* was closer than that, and the torpedo ran straight and true, missing *Chatelain* and continuing on harmlessly.

Lange ordered a hard turn to starboard, beginning a set of violent maneuvers to evade his attacker. He also ordered a dive. U-505 had one chance to escape its tormentors. It had to dive deeply, and get to its maximum test depth of 200m – or perhaps a bit deeper – and run silently.

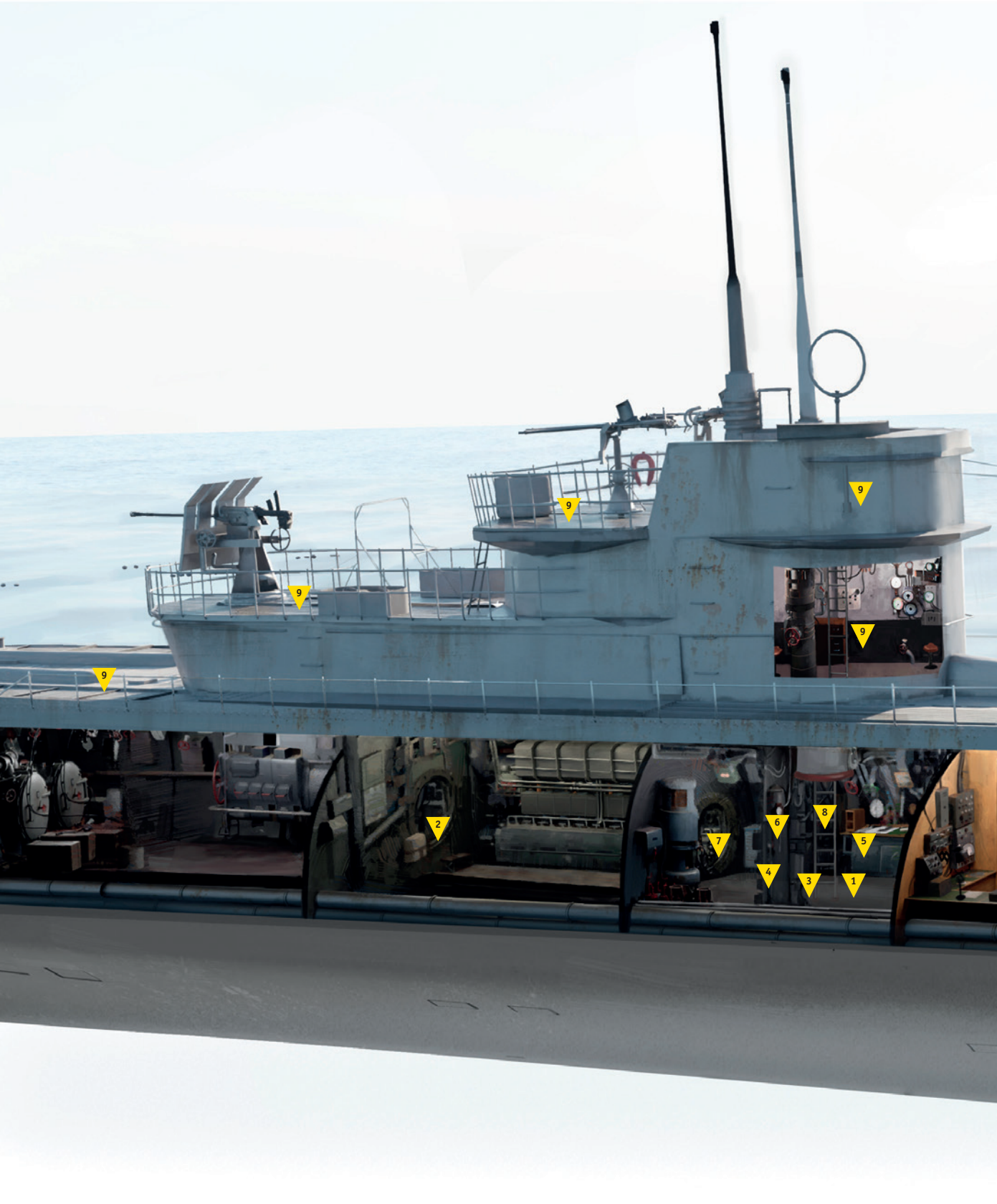
The deeper it went the harder it was for the American sonar to accurately track the U-boat. Increasing the time between when the depth charges were dropped and they reached the depth at which the boat was at gave U-505 more time to evade the depth charges. Additionally, the point at which depth charges detonated was preset before they were dropped and sonar did not then produce depth information. The greater the submarine's depth, the greater the chance the depth charges would be set to the wrong depth. Perhaps the Allies would not realize how deep the U-boat dived, and would set their depth charges at a harmless depth – 150m rather than 200m.

All that was needed was a little bit of time – the destroyer had already missed once. Perhaps it would delay its second attack long enough for U-505 to reach safety. Perhaps if U-505 reached the depths, they could hide long enough to outwait the antisubmarine group. It did not seem likely (Lange was unaware of TG 22.3's low fuel), but when you hold a bad hand of cards, you must play them as best you can.

It probably would not have worked. By the time *Chatelain* made its Hedgehog attack, *Jenks* and *Pillsbury* were in position forming an attack square in a maneuver the well-trained group labeled 'Operation Observant'. *Jenks* and *Pillsbury* were at the opposite ends of the square with *Chatelain* in the center.

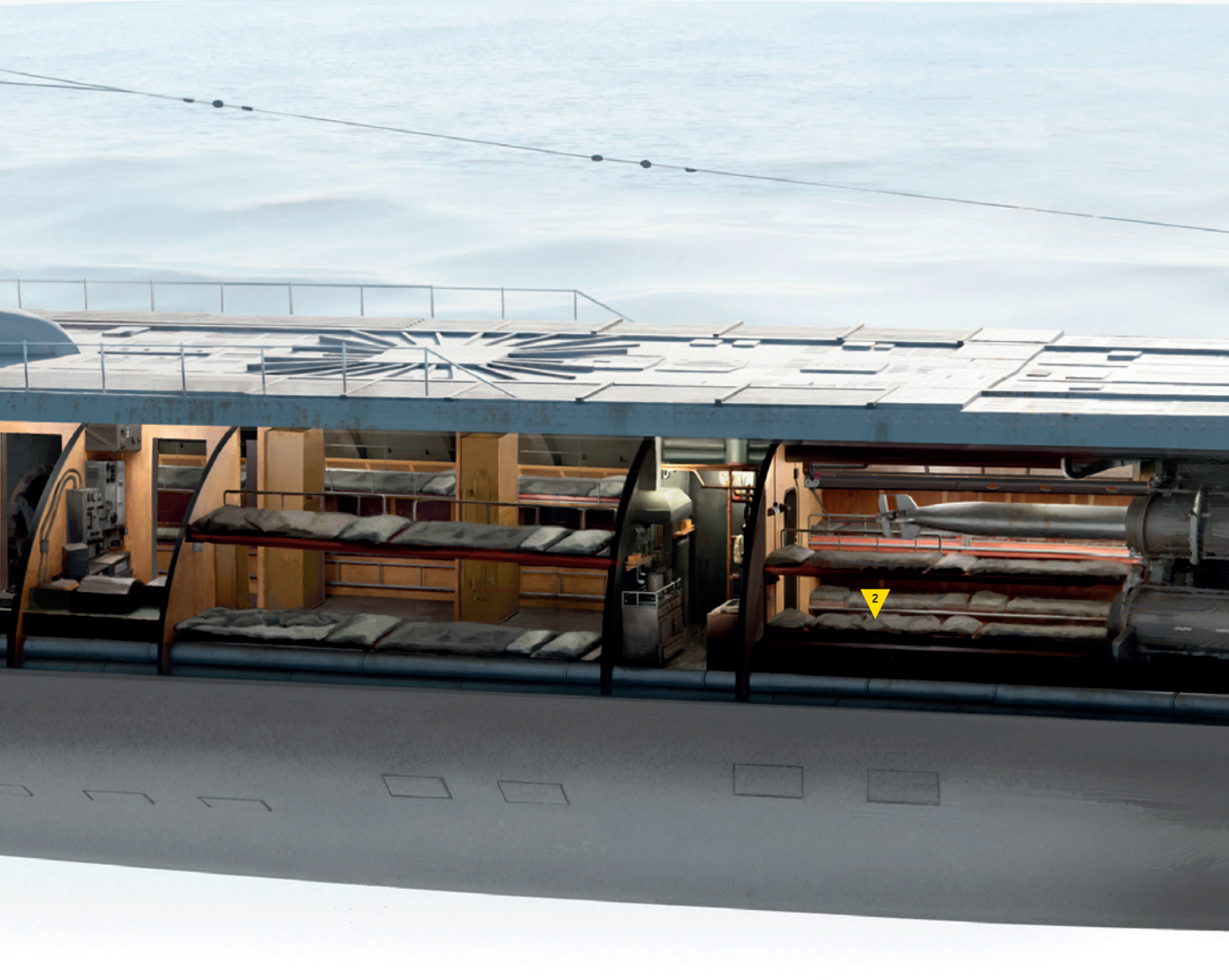
Knox anticipated Lange's action. He streamed *Chatelain*'s foxer gear (a noisemaker streamed aft of a ship to draw acoustic torpedoes away from the ship's propellers) as a precaution against U-505 firing another *Zaunkonig*. A minute later a Wildcat fired a machine gun in the water over the U-boat, to mark its position, bearing 130 degrees from *Chatelain*

The men who prevented U-505 from sinking



EVENTS

1. Woowiak and Knispe enter U-505 first and descend to the control room.
2. Armed with tommy guns they go through the U-boat looking for Germans.
3. David enters U-505 and descends to the control room.
4. Learning U-505 is empty Woowiak and Knispe return to the control room, closing open valves as they go to stop the flooding.
5. David closes open valves in the control room and begins collecting charts and papers.
6. Lukosius enters U-505 descending to the control room.
7. While assisting David, Lukosius notices the sea strainer cover is off, letting water in. He finds it and seals the pipe.
8. Woowiak grabs papers and the coding machine from the radio room, to take to the control room to pass out of the boat.
9. The other five members of the boarding team form a human chain from the conning tower to the bandstand to pass materials seized by those inside U-505 to the waiting whaler.



After *Chatalein* failed to hit the submarine with Hedgehogs, it dropped a full pattern of 14 depth charges on the U-boat. The 600lb depth charges were set to explode at 75–150ft. They went off when U-505 was 197ft deep and damaged it enough to force it to surface. (Author's Collection)

starboard bow. By then *Chatelain* regained sonar contact, turned 128 degrees to starboard and at 14 knots, drove over the contact point.

It dropped a 14-charge pattern of 600lb depth charges as it passed over where it believed the U-boat was. Six depth charges were fired by the K-guns, three on either side of the ship. Four rolled off each of two stern racks. The hydrostatic triggers on the depth charges were set shallow, with magnetic triggers activated as a back-up. A dye marker was dropped with the stern charges. One charge went off shallow (most likely prematurely). The rest went off at the preset depth.

U-505 had reached a depth of 60m (197ft) when *Chatelain*'s depth-charge pattern exploded above it. Hans Goebeler, aboard U-505 in the control room described what happened next: "The first few charges were close, and the next few even closer. Then two ear-shattering detonations sent us flying off our feet. The boat almost keeled over from the force of one of the blasts."

The depth-charge pattern knocked out electricity on U-505 plunging the crew into darkness. A small high-pressure water leak from a sprung valve or pipe started spraying in the control room. The rear torpedo room was filling rapidly with water. Lange ordered it evacuated. Its crew bailed out, and sealed the door behind the last man out. Emergency lighting was restored, but except for U-505's electric motors, all other electrical systems were out of action.

Worse news followed. The rudder was jammed hard to starboard. Emergency manual steering for the rudder was in the sealed-off (and presumably flooding) aft torpedo room. The forward diving planes were jammed. With rudder and diving planes stuck, U-505 could no longer maneuver. It might not be able to surface. While the pressure hull forward of the aft torpedo room seemed whole, the aft room was reportedly taking on water.

Lange's only option at this point was to surface. Without diving planes U-505 could not control its depth. Ocean bottom was at 1,700 fathoms, well below U-505's crush depth, and unless U-505 successfully blew its tanks and gained positive buoyancy, it would continue sinking into the depths until it passed crush depth and the pressure hull collapsed. Those manning hydrophones aboard the US destroyer escorts would hear the distinctive crunch of the imploding hull, marking the death of every man aboard U-505.

Lange ordered U-505 to surface. The control room crew blew the ballast tanks. U-505 continued its uncontrolled plunge until it reached a depth of 230m, 30m below test depth. Then, almost reluctantly, the descent ended and the U-boat began rising to the surface.

On the surface, *Chatelain*, *Jenks*, and *Pillsbury* waited. Knox knew he had damaged his target as an oil slick rose around the dye marker. At 1118hrs, over TBS radio Knox advised everyone "Looks like we struck oil." Four minutes later, U-505 surfaced.

The minutes between when U-505's dive was reversed and it broke surface was the time the crew had to prepare for surfacing. They had two choices: to fight it out or scuttle the boat and surrender. The choices were mutually exclusive. One required the crew to man its battle stations and prepare to slug it out. The other involved organizing the crew to set scuttling charges, open valves (to fill the pressure hull with water) and quickly evacuate, before the U-boat sank out from under them.

Fighting it out on the surface was unrealistic. U-505 could not maneuver and its after torpedo tubes, one-third of its striking power, were unavailable. Its deck guns, a 37mm and some 20mm, were too light to fight even one destroyer escort and Lange knew there were at least three waiting for him on the surface. Whether to abandon or fight was his decision as captain of U-505. The crew expected a call to abandon ship as they waited at battle stations for him to make the decision.

Lange made perhaps his worst decision he ever made as captain of U-505. He decided to defer the decision until U-505 surfaced and he could exit the conning tower and check conditions on the surface himself. It was an uncharacteristically irresolute choice for a man whose decisions were usually decisive and skilled.

Perhaps, he must have thought, there was a chance of escape, when they surfaced. Maybe the dive had taken U-505 away from the destroyers. Regardless, he refused to order an abandon ship as the submarine headed up. His crew, loyal to a skipper who had gotten them out of numerous scrapes since taking command, waited at their stations.

As U-505 emerged from below, *Chatelain*, *Jenks*, *Pillsbury*, and the two Wildcat fighters overhead opened fire. *Chatelain*, 500yds from U-505 fired first. *Jenks*, 2,000yds away, followed almost immediately. *Pillsbury*, 3,250yds from U-505 joined in a minute later. They fired everything, including their main batteries of 3in guns – a hit from which could sink the submarine.

When U-505 surfaced, the three destroyer escorts nearest it initially forgot they intended to capture a U-boat, not sink it. They opened up by firing every gun that could be brought to bear, including their 3in main guns capable of sinking a U-boat. Despite firing over 100 3in rounds between them, *Chatelain*, *Pillsbury*, and *Jenks* failed to sink U-505. (Author's Collection)

The two *Guadalcanal* Wildcats airborne when the U-505 broke the surface repeatedly strafed it. Their .50cal machine guns were incapable of penetrating the pressure hull, but encouraged a quick evacuation of the boat by its crew. (USNHHC)

Frisky One and Frisky Seven joined the destroyer escorts attacking the U-boat. Roberts poured 1,200 rounds of .50cal fire into the conning tower and *Wintergarten* on three separate passes. Cadle had more ammunition because he had not marked U-505's position when it was submerged. He unloaded 1,600 rounds, emptying his magazines. Both concentrated their fired on U-505's 37mm and four 20mm guns. In their after-action report both mentioned moderate, inaccurate antiaircraft fire during their second and third passes.

The result devastated the bridge crew. Aboard U-505 Lange, following routine, was the first man through the hatch, followed closely by the bridge crew. One look was enough. Lange ordered U-505 scuttled and abandoned. It was the only order he gave. Lange was hit almost immediately. Badly wounded, he fell on the conning tower deck unconscious.

Command then fell to Paul Meyer, the First Watch Officer. He started aboard U-505 as Second Watch Officer and had been 1WO since August, 1943. Competent and popular, Meyer served as the buffer between U-505's crew and its erratic previous commander, Peter Zschech, and had brought U-505 home after Zschech committed suicide.

In battle, his position as 1WO was in the control room overseeing operations as the captain directed the battle from the conning tower. However, during a routine surfacing, the 1WO and the four-man bridge watch followed the captain to the bridge. Whether due to this routine or because Lange was hit, and Meyer now effectively captain, Meyer went through the conning tower hatch to take command. He made it to the *Wintergarten* platform before he too was cut down.

Command devolved on the 2WO, Kurt Brey. Like Lange, a reserve officer, at 37 he was the second-oldest man in the crew (after Lange, who was 40). An experienced mariner, he should have stepped into a leadership role and led U-505's evacuation. Instead he achieved the remarkable feat of going completely unnoticed by the rest of the survivors. Afterwards none recalled his activities during the sinking, even though he was one of the survivors.

The final officers aboard U-505 were the doctor, Friedrich Rosenmeyer, and Josef Hauser, the engineering officer, neither of whom were line officers. The doctor was only responsible for the crew's health, and past attempts by him to play U-boat officer had put the ship in danger. Lange and Meyer had provided the crew with tacit permission to ignore orders relating to seamanship issued by the doctor. Even if he had attempted to take charge, he would have been ignored.

Josef Hauser's duty was seeing U-505 scuttled. When a U-boat was abandoned, the engineering officer was supposed to be the last man off the

ship. He had to set the scuttling charges and supervise the engineering and control room sailors as they opened the air and water valves, and seacocks. However, when the abandon ship order was given, Hauser immediately headed for the hatch and safety, ignoring his responsibilities to sink U-505.

This left U-505 leaderless. The evacuation quickly became disorganized, every man for himself. No one thought to open the forward torpedo hatch or the galley hatch. (The rear torpedo hatch was in the sealed-off after torpedo room.) Instead everyone exited through the conning tower hatch. Opening the forward torpedo hatch or galley hatch would have soon flooded U-505. Waves washing over the forward deck would have filled the pressure hull with enough extra water to sink it.

Meanwhile, TG 22.3 was encouraging a swift departure, keeping up a heavy fire at the surfaced sub. U-505 plowed ahead at 7 knots on a tight right turn. As it swung towards *Chatelain*, Knox assumed the submarine was trying to torpedo him. He fired one of *Chatelain*'s torpedoes at U-505. It went wide, missing the boat.

Gallery, aboard *Guadalcanal*, might have been the first to realize U-505's crew was abandoning rather than fighting. Ninety seconds after fire commenced he sent out the radio directive, "Bluejay to Blondie [Escort Division FOUR Commander] I want to capture this bastard if possible." At 1124hrs *Guadalcanal* launched its killer team, with instructions to not use any weapons that could sink the submarine unless it began submerging, but they never got into the action. It was over before they arrived.

Frederick S. Hall, commanding Escort Division FOUR ordered a ceasefire at 1127hrs. The submarine's crew was obviously abandoning, not fighting it out. At 1126hrs *Jenks* reported, "They are surrendering, they have their hands up." *Guadalcanal* relayed the instruction to Frisky One and Seven. The official report later recorded, "The two fighter pilots who were strafing the sub acknowledged this order to cease firing in the most disgusted tone of voice I have ever heard – but they obeyed the order."

When the order to abandon U-505 was given most of the crew swarmed up the ladder to the conning tower and then onto the bridge. Although the guns were briefly manned, strafing and gunfire discouraged their use and were quickly abandoned. Most men simply raised their hands and jumped over the side. They grabbed pipe boats – individual inflatable survival

Harald Lange was badly injured as he reached the bridge. He was hit in the legs several times by gunfire. He survived being thrown in the water with a faulty life jacket after his crew saved him. He is shown here being transferred to *Guadalcanal* for surgery. He lost a leg from his injuries. (USNHHC)

rafts – as they went. Generally they jumped off the port side, sheltered from the destroyer escorts' fire. Surprisingly, despite the volume of fire and several injuries, only one man of U-505's crew was killed, radioman Gottfried Fischer.

Lange regained consciousness only to be blown off the bridge to the main deck by an explosion and from there by another explosion into the water. His life vest was punctured and useless. He would likely have drowned, but two members of the crew spotted him, brought a pipe boat and placed him in it.

Except for a few members of the control room team, the abandonment became a stampede. No one in the engine room shut down the electric motors before abandoning. U-505 was still plowing ahead at 7 knots. All command structure was gone. On their own initiative, machinist mate Alfred-Karl Holdenried and Hans Goebeler, with one or two others attempted to scuttle U-505 but could not set the scuttling charges. Only Lange, Meyer, and Hauser knew how to set the timers. Two were wounded, and Hauser already overboard.

They began to open the valves on the boat's seven diving cells, to let air escape from them so they could fill with water. The after five were soon opened but valves on the forward pair, on the outside of the forward torpedo room, stuck shut. Perhaps the depth-charging jammed them. They were the largest cells, giving the most buoyancy. Another cell was possibly still sealed, providing still more buoyancy. Regardless, U-505 was settling by the stern.

Since they assumed the aft torpedo room was also filling – as it was assumed the hull aft was breeched – the remaining men decided it was time to leave before U-505 sank, taking them with it. On the way out, already on the ladder, Goebeler thought of something else that would speed the boat's sinking. He returned to the control room and removed the cover to a bilge strainer, a six-inch pipe connected to a normally open seacock. There was another one in the engine room, but Goebeler was probably unaware of it. His job did not involve them.

He set the cover to one side, and scrambled up the ladder, perhaps the last man to exit U-505. He had done his duty – and more. He dove off the side, with U-505 plowing ahead in a tight right circle.

Landing the fish

TG 22.3 had what they had sought – an abandoned U-boat. It was time to take possession. By 1130hrs everyone realized the submarine was being evacuated, despite its still moving briskly through the water. Task Group members knew the goal of this cruise was to capture a U-boat and bring it to port. Now they saw an opportunity to do it. *Jenks* asked permission to land a boarding party and take the submarine in tow. *Pillsbury*, with the commander of the destroyer escort division aboard, messaged: "We have taken care of that. We have a boat to rail." It was the senior officer's privilege to take the prize, and he intended to do so. At that point taking immediate possession was premature. At 1132hrs, the two fighters, ordered to go down and look for survivors reported seeing several men and life boats

in the water, with more diving in and leaving in yellow boats.

At that time *Jenks* was ordered to pick up survivors, instead. Hall ordered *Jenks* to put a boat in the water to collect evidence to the sinking and take the German survivors aboard over the side, using cargo nets to allow them to climb aboard. He informed *Chatelain* that *Pillsbury* had a boat in the water and told *Chatelain* to stand clear. A minute later *Chatelain* also received orders to lower a boat and recover evidence and survivors.

The boarding party from *Pillsbury* approaches U-505, which was driving ahead at 7 knots. The whaler's boat hook can be seen readying to tie on to the U-boat. The subsequent capture of U-505 reminded observers of a cowboy trying to lasso a steer. (USNHHC)

By 1135hrs it was clear the sub was vacant, and *Pillsbury*'s boat was in the water, motoring to the circling U-boat. Aboard was a nine-man boarding party led by Albert David, *Pillsbury*'s executive officer, and a three-man boat crew. The men had been picked as best qualified – or, perhaps as aboard *Guadalcanal*, least unqualified – to board and capture an enemy U-boat. This was unknown territory as it had never previously been attempted.

At this point, for those not engaged in the three motor whaleboats, the attempt was beginning to take on aspects of a sporting event, a football game or perhaps a maritime rodeo. The two fighter pilots who had been recently trying to sink U-505 were worrying over whether the boat would get there in time to save the sub, Cadle stating "I wish those guys would hurry – there is still time to save sub." The two aircraft from the hunter-killer team circled the scene, taking pictures like spectators at a crash scene.

Racing the rising water

Four men initially entered U-505: Albert David, Stanley E. Woowiak, Arthur K. Knispel, and Zenon Lukosius. They had a twofold mission: to stop U-505 from sinking and to gather important intelligence and spirit it off U-505 if it sank despite their best efforts. This plate depicts those four within U-505's control room, only minutes after entering the U-boat.

The control room, centrally located, was the heart of operations for a U-boat. The helm was run from the control room, as were the diving controls. Navigation and attack plotting was conducted from a chart table in the control room. During battle, a boat's First Watch Officer coordinated the activities of the boat from the control room. Albert initially entered U-505 followed closely by Woowiak and Knispel. They entered the conning tower, and then descended into the control room, directly below.

At this point they were committed. If U-505 sank under them, they might be able to slip out of the conning tower. One level down, there was no escape. If U-505 plunged to the ocean floor, they were going with it. While David stayed in the control room, shutting off valves, and trying to stop the careening U-boat, Knispel and Woowiak checked the sub for other occupants. Finding it empty, they closed the air valves on the buoyancy tanks as they returned to the control room.

At some point, David called motorman 1st class Zenon Lukosius to join them, possibly to shut down the engines. Lukosius, while heading for the engine room, spotted the open sea strainer, with water gushing from it. He found the cover in a corner of the control room and slapped it on, dogging it shut.

By then, both Woowiak and Knispel were back in the control room. As David gathered up papers and charts left on the chart table, Woowiak can be seen on the ladder to the conning tower passing the first of his prizes up to the waiting hands of a comrade above: the box containing U-505's Enigma machine. Knispel can be seen searching the starboard side of the control room for anything worth taking.

USN
PROPERTY

Once U-505 was brought under control, *Pillsbury* came alongside preparatory to making tow line. U-505's forward diving plane ripped a hole in *Pillsbury* below the waterline. *Pillsbury* abandoned efforts to tow U-505 to concentrate on damage control. (USNHHC)

It took ten minutes for *Pillsbury's* boat to reach U-505. *Pillsbury* had been around 1,200yds from the submarine when it lowered its boat. The approach was complicated by the speeding U-505, but the whaleboat's coxswain Phil N. Thrushheim brought it alongside, while its boat hook, Seaman 1st class E. J. Beaver, managed to hook a line on the vessel. To Gallery on *Guadalcanal*'s bridge it looked like a cowboy trying to rope a wild horse. He broadcast, "Hi-yo *Pillsbury*! [A reference to the radio show *Lone Ranger*] Ride 'em cowboy!"

David and his eight men leapt from the whaleboat to the deck of the plunging U-505. They mounted to the conning tower bridge. There they found the body of Gottfried Fischer, the only German still aboard U-505. Unaware of this and ready for any resistance, David, closely followed by radioman second class Stanley E. Woowiak and torpedoman second class Arthur K. Knispel, plunged through the hatch into the sub.

The two enlisted men were armed with Thompson submachine guns, Albert with an M1911 service revolver. Both weapons fired man-stopping .45cal rounds. From the control room, Knispel and Woowiak, tommy guns at the ready swept through the boat, one going aft and one going forward. They searched for any remaining German sailors, but found the U-boat deserted.

They realized U-505's crew had done a competent job of scuttling the boat. It was filling with water, and they set to work reversing that. Finding they were in sole possession of their new prize the three began closing valves to slow the boat's sinking. David called for help and Machinist's Mate 1st Class Zenon B. Lukosius jumped into the U-boat. Once in the control room he headed for the engine room. On the way he noticed the open sea strainer, with water gushing out of it.

Glancing around Lukosius saw the cover on the deck plates in the corner of the control room. He grabbed it, slammed it over the hole, and flipped

up the four latches that secured the cover to the pipe. While water was still forcing its way between the cover and pipe, it slowed the flow. Moreover, each latch had a wingnut, which allowed him to tighten the lid down. Before long it was sealed. Just in time, too. If it had been left open another five minutes enough water would have filled U-505 that it would have tilted aft and slid into the ocean. Goebeler and Lukosius would exchange memories about the sea strainer after the war. Goebeler would curse himself for not throwing the cover into the bilges where it could not be found.

At the time, to the four men inside U-505 it did not seem certain the boat would remain afloat. They began grabbing anything that looked important and began passing it to the men on the bridge, the other five men in the boarding party, Gunner's Mate 1st Class C. A. Mocarski, Bosun's Mate 2nd Class W. M. Pickles, Chief Motor Machinist's Mate G. W. Jacobson, Electrician's Mate 2nd Class W. R. Riendeau, and Signalman 3rd class G. F. Hohne. They, in turn passed it to the crew of the whaleboat.

Thrushheim related what happened next: "In the next ten minutes all kinds of stuff started coming out of the tower hatch and we put them in the whaleboat – things like guns, binoculars, and a bunch of what we were told were important papers. One of the items was a decoder machine. . . They got a lot of codebooks and radio data in the radio room. It was not quite noon."

Meanwhile, U-505's crew was scattered in the ocean, trying to stay afloat. The water was warm, but choppy, and they began to gather into groups. There was one large life raft and several small pipe boats. The whole members of the crew began assisting the injured, including Captain Lange. The wounded were placed in the rafts. Just before *Pillsbury*'s men boarded the boat Lange had called for "three cheers for our sinking boat," and the survivors replied, doing so.

As they bobbed around in the water, the sight of the motor whaleboat chasing the careening U-boat offered amusement. When *Pillsbury*'s boat managed to tie on to U-505 and men began boarding the submarine, more laughs ensued. The Germans began joking that U-505 might take down more Americans unmanned than when it had a crew aboard. At this point only the bow and conning tower was visible. They believed U-505 would soon sink.

But it did not. To Goebel's dismay, it stubbornly remained floating. It

Pillsbury, Chatelain, and *Jenks* recovered U-505's 44 surviving crewmen from the water. Remarkably only one member of the crew was killed during the battle. The German POWs are shown boarding *Guadalcanal* on June 5. The body of their dead comrade was recovered and is aboard the whaler. (USNHHC)

was as if the Americans had found the open sea strainer and capped it. Their observations were then interrupted by the arrival of *Jenks* and *Chatelain*. Between 1155hrs and 1208hrs, the two destroyer escorts scooped up the survivors, bringing them aboard. Even *Pillsbury* picked up some of the more isolated survivors, bringing seven aboard as it neared U-505.

Meanwhile, TG 22.3 was rallying to save "their" U-boat. At 1219hrs *Guadalcanal* lowered a whaleboat with a ten-man boarding party that included Earl Trosino, *Guadalcanal*'s chief engineer, to assist in salvaging U-505. It reached U-505 at 1240hrs, literally arriving with a bang. A wave swept the whaleboat onto U-505's deck, where it landed with a loud thud, startling the men inside the boat. Trosino and team were soon in the submarine, to assist the four already there. Among other things they carried gasoline-powered billy pumps, which they rigged to begin dewatering U-505. Trosino also supervised disconnecting the scuttling charges – the men aboard were still unaware that they had not been set, and were concerned they were on timed fuses. U-505 had so little reserve buoyance any one of them going off would have taken U-505 and all aboard straight to the bottom.

Five minutes after *Guadalcanal*'s whaleboat arrived, *Pillsbury* came alongside to provide more pumps and additional electricity. The still-moving U-505 ripped a gash in *Pillsbury*'s side with its diving planes, managing to do more damage to the enemy unmanned than it had while it was manned. The holes flooded three compartments, including one of the motor rooms. All but a skeleton crew aboard *Pillsbury* turned to damage control, abandoning its attempt to tow the submarine.

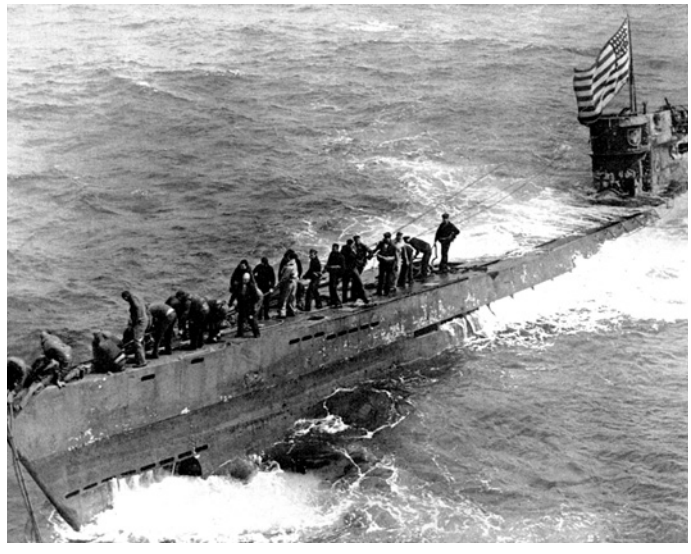
After this, David and the men aboard U-505 pulled the switches on the main motors, to stop the submarine. When they did, U-505 started settling dangerously in the water. They started the motors up again, needing the forward progress to help keep it afloat. The boarding party soon reported, "We must be towed to stay afloat." U-505 was now so low in the water the salvage crew sealed the conning tower hatch to keep water from pouring into the boat through the hatch. By this point they had shut all the seacocks within the sub and it no longer seemed to be taking on water internally.

With *Pillsbury* absorbed in keeping itself afloat, Gallery decided to take U-505 under tow by *Guadalcanal*. Although towing another vessel was not an evolution normally conducted by escort carriers, seven months previously they had practiced towing a destroyer with *Guadalcanal*. The exercise was suddenly relevant. U-505's motors were again stopped and by 1415hrs Gallery was maneuvering *Guadalcanal* to take U-505 under tow. When *Guadalcanal* was alongside U-505's bow, a line was passed to a party on the submarine's bow. A 1.25in wire was made fast and within ten minutes *Guadalcanal* had U-505 under tow.

At one point *Guadalcanal*'s stern was directly in front of U-505's bow, 50ft from the boat's four loaded bow torpedo tubes. Seeing this Gallery asked one more time "You're sure there are no Germans aboard the sub?" He later wrote "I said a fervent prayer, 'Dear Lord, I've got a bunch of inquisitive young lads on that submarine. Please don't let any of them monkey with the firing switch.'"

Carrier and submarine were soon underway. As they gained headway, U-505's stern came up. With the boat higher, they tried to reopen the conning tower hatch, but a partial vacuum sealed it shut. They could not open it until they vented the submarine by opening a speaking tube on the bridge.

The rest of the afternoon was spent securing the prize. There was much to be done. Dewatering continued, and more papers were found and transferred off U-505 to *Guadalcanal*. *Pillsbury* covered the hole in its hull with a collision mat sent from *Guadalcanal* and effected repairs. Air operations resumed with airborne aircraft flying over the captured U-505, under tow by *Guadalcanal*, to land on the carrier.



Salvage parties from *Pillsbury* and *Guadalcanal* prepare to pass a line to *Guadalcanal* so the aircraft carrier can tow the prize submarine. The U-boat was threatening to sink if it remained motionless. The rear diving planes lifted the stern while it was under tow. (Author's Collection)

However, problems remained. U-505's rudder was jammed hard over, making towing difficult. It kept pulling to the right. *Pillsbury* was dead in the water until it made repairs. TG 22.3 was low on fuel and keeping the ships lying to in waters potentially containing other U-boats was too risky. Other sound contacts had been made that afternoon. While those were false alarms, the next one might be real. Gallery detailed *Pope* to stay with *Pillsbury*, and set a course to Dakar. The capture of U-505 left him with too little fuel to reach Casablanca.

By midafternoon Gallery signaled his intentions to Tenth Fleet headquarters in Washington. He had captured a submarine and was sailing to Dakar due to fuel shortages. The message created a stir. Washington immediately realized the implications of the Germans learning a submarine had been captured intact, without an opportunity to dispose of its code machines and secret papers. The immediate effect would be they would change their codes, and quite possibly replace the Enigma coding machines with a new one.

The Allies had been reading German signals for much of the war, and by June 1944 were reading them virtually real-time. Now the closely guarded Enigma secret had been put in peril by an overenthusiastic (in Washington's eyes) escort carrier task group commander. The landings in northern France were scheduled for the next day, June 5. (Weather postponed D-Day until June 6.) There was no worse time to lose the ability to read the enemy's communications.

Containment became the focus, and U-505's capture had to be kept secret. Arrival in Dakar or Casablanca would make that impossible. Not because there might be Axis spies in both ports, although there might have been. Rather, it was because of the sheer number of people in both locations, civilian and military. Tens of thousands would set eyes on the captured

U-boat in either port. Word would spread to the hundreds of thousands that lived in those cities (Casablanca's population was half a million, while Dakar's was around 200,000), and from there to the world. A more isolated spot was needed.

That night orders were sent to TG 22.3 not to proceed to Dakar, but rather continue to Casablanca. They were instructed to rendezvous with an oiler for mid-ocean refueling. Fleet oiler *Kennebec* (20,000 tons), seaplane tender *Humboldt*, oceangoing tug *Abnaki*, escorted by destroyer escort *Durik* were ordered to sail from Casablanca to rendezvous with TG 22.3. Aboard *Humboldt* was Colby G. Rucker, a submariner, who understood how to salvage a U-boat.

All hands in TG 22.3 spent an uneasy night. U-505 parted its towline. *Guadalcanal* and the three remaining destroyer escorts spent the night circling the U-boat until the tow could be reset the next morning with a sturdier towline. Enthusiasm among the salvage crew aboard U-505 remained high. Someone found red paint, and painted "Can-Do, Junior" in large letters on the front of the conning tower. "Can-Do" was *Guadalcanal*'s nickname and the tow quickly became "Junior." They also set on the conning tower a large stars-and-stripes flag above a smaller Nazi flag, the traditional symbol of a captured warship.

By then, *Pillsbury* had finished its repairs, and it and *Pope* rejoined during the night. The German POWs, 44 in all, had been transferred to *Guadalcanal* before sunset. Most were locked up in a compartment aft. This gave them an opportunity to view their old home under tow by *Guadalcanal*. Lange and several other wounded were sent to the sick bay. Lange lost his leg due to his injuries.

As soon as U-505 was safely under tow *Guadalcanal* resumed air operations. Here an Avenger comes in for a landing with U-505 under tow. U-505 can be seen pulling to port due to its jammed rudder. The slower speed *Guadalcanal* had to go while towing U-505 made take-offs and landings challenging. (Author's Collection)

The next morning and through June 7, when TG 22.3 rendezvoused with the tanker and its consorts, Trosino worked on keeping U-505 afloat. He figured out how to recharge U-505's batteries by connecting the propellers to the generators. The propellers spinning as U-505 was towed, ran the generators, recharging the batteries. He also centered U-505's rudder.

This involved opening the watertight door to the aft torpedo room. No one was willing to do this until June 5 due to a "booby trap" blocking the door. Gallery had completed a demolitions course, and was TG 22.3's "expert" on booby traps. Using it as an excuse to board his prize he went below to examine the trap. It proved to be the main panel of an electrical fuse box which had fallen open across the torpedo room door. There were electrical connections which led the salvage party to wonder if it was a booby trap.

Gallery "defused" it by closing the box. He doubted the Germans had time to set booby traps if they had not set the scuttling charges. After that Gallery, Trosino and a third man cracked open the door to the "flooded" aft torpedo room and found it dry. From there it was a simple matter to straighten the rudder amidships using the manual steering.

After two days Trosino found more assistance in saving U-505. Felix Ewald, an ethnic-German living in Poland, had been conscripted into naval service after Poland's conquest and forced to serve aboard U-505. Through a Polish-American member of *Guadalcanal*'s crew he volunteered to help save the submarine in exchange for being allowed to serve in the United States Navy.

Removed from the rest of the prisoners, he was outfitted in American dungarees and bunked with *Guadalcanal*'s crew. He then assisted the salvage team in refloating and restoring U-505. By the time *Kennebec* and *Abnaki* arrived on June 7, U-505 was riding high. Trosino and his team had it in good shape. Trosino even felt he could start the diesels and run U-505 under its own power. When Rucker boarded U-505, Rucker told the salvage team they had done everything he would have done, and left soon after.

After capturing U-505 the men of TG 22.3 spent the next week working to keep their prize. This included dewatering the U-boat and disconnecting the scuttling charges. It also included ridding the U-boat of other hazards, including a damaged torpedo in one of the external containers. A US Navy team prepares to drop the torpedo over the side. (USNHHC)

To Bermuda

By the time the two groups rendezvoused on June 7, Gallery and TG 22.3 had a new destination: Bermuda. A set of islands nearly 1,000 miles from the North American coastline (or anything else), Bermuda was the perfect place to hide U-505. It was isolated. A British Siberia but with pleasant weather, it was where the Allies sent people and things to be forgotten. The Duke of Windsor, brother to King George VI and suspected of Nazi sympathies, was exiled there as its wartime governor-general.

The relief force had been sent without explanation. *Abnaki* assumed it had been sent to tow a disabled *Guadalcanal* to port. Nonplussed, its crew took over the tow of U-505 from *Guadalcanal*. The powerful tug could tow U-505 at 9 knots, fast enough that the batteries were soon fully charged despite running the pumps. *Kennebec* refueled the empty fuel tanks of TG 22.3 warships. The ten ships shaped course for the 2,500-mile run to Bermuda with Junior in tow. One destroyer escort, steam-powered *Jenks*, was loaded with the code machine and ten sacks weighing 1,100lb. They contained papers from U-505: official mail, codebooks, manuals, and official documents. It proceeded to Bermuda at flank speed, arriving at Bermuda days before the rest of the ships. *Jenks*'s haul was then flown to Washington by aircraft, arriving on June 12.

US Navy deep sea tug USS *Abnaki* (ATF-96) tows U-505 en route to Bermuda. The tug pulled U-505 fast enough that the salvage crew could use the submarine's propellers to run its generators and power the U-boat. This allowed the submarine's pumps to be run and drain the boat. (USNHHC)

While TG 22.3 was following behind *Jenks*, Washington and London were impressing Gallery with the importance of keeping the capture totally secret. If the Axis learned of it, the Ultra secret would be compromised. Gallery knew nothing about Enigma (and probably never learned the full extent to which the Allies had been reading German codes before his 1977 death). He did though understand the value of the capture would be reduced if word got out, and swore the 3,000 men within Task Group 22.3 to absolute secrecy. Such was their spirit they kept the secret until after VE Day in May 1945.

U-505, US flag over Nazi flag, was towed into Bermuda's Port Royal Harbor on June 19. It was met there by Kenneth Knowles, Francis "Frog" Low (Admiral Ernest King's Tenth Fleet Chief of Staff), and seven other intelligence experts. Knowles proceeded to "disappear" U-505. It was renamed *Nemo* (Latin for "no one," the name cribbed from Jules Verne's *20,000 Leagues Under the Seas*) and remained so until the war in Europe ended.

U-505 was dry-docked at Bermuda. A hull inspection revealed the hull was almost intact. Only one hole, from a 20mm gun, was found and patched. New diving planes were manufactured and added to replace the ones left in *Pillsbury*. It was then turned over to a US Navy crew for testing. U-505 remained in Bermuda until the European war ended. The Navy finally announced its capture on May 16, 1945. After that it was sent to Portsmouth, NH. It spent the rest of the war, through August 1945, traveling the Eastern Seaboard of the United States on a bond tour. For the price of a War Bond, visitors were allowed aboard the boat.

The German prisoners, except for Felix Ewald, were kept in isolation in a POW camp in Bermuda. Ewald was not permitted to join the US Navy, but spent the war in relatively luxurious captivity. The rest were eventually transferred to Texas, and finally a camp near Ruston, Louisiana. They were kept isolated from the other prisoners. To keep U-505's capture secret, their names were not released until after Germany's surrender, leaving their families to believe they were missing and presumed dead. To prevent International Red Cross visits, they were placed in a compound for anti-Nazi Germans and classified as political refugees, exempt from examination.

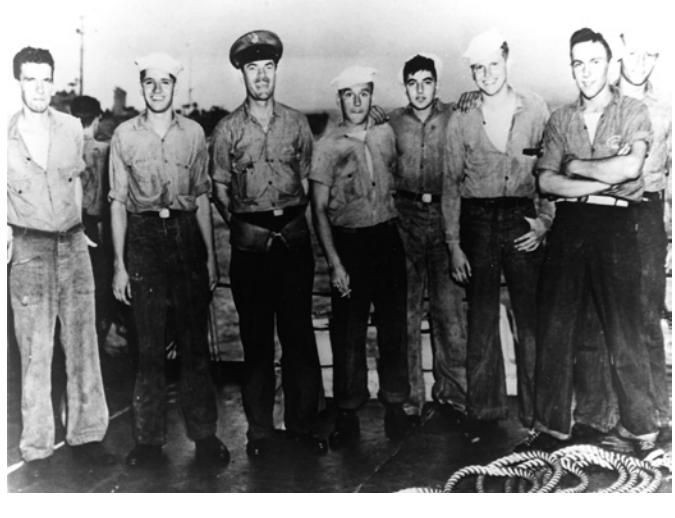
Gallery was awarded a distinguished service medal. David received the Medal of Honor, and other members of the salvage party lesser medals. TG 22.3 was awarded a Presidential Unit Citation after the war ended, awarded personally by Admiral King.

ANALYSIS

The capture of U-505 was one of the most audacious raids of World War II. It was also the most unexpectedly successful. No one, except perhaps Daniel Gallery and the men of Task Group 22.3, expected the group to return to port with a U-boat in tow. US Naval intelligence was not expecting success, despite the assistance they gave Gallery before *Guadalcanal*'s third war patrol. If they had they would have given thought to the consequences a capture would have for the Enigma secret. I suspect even Gallery did not realistically expect to succeed, but was determined to give it his best shot. Why it succeeded is one of the major questions about the raid.

Its success was due to two reasons: preparation and surprise. Task Group 22.3 was prepared to capture a submarine. The crew of U-505 was not prepared to scuttle their submarine. The very unexpectedness of the raid allowed it to succeed.

The Task Group carefully prepared to capture a U-boat. Gallery believed in hindsight he could have captured U-515 if prepared to do so, and was determined to be ready the next time an opportunity occurred. Gallery set capturing a U-boat as an objective before the war patrol started. It was part of the daily Plan of the Day issued aboard *Guadalcanal* and the five destroyer escorts of Escort Division FOUR. Men were detailed for boarding parties and practiced boarding activities. An opportunity was needed, but the previous patrol demonstrated opportunities did arise.



The enlisted men of *Pillsbury* who made up the first party to board U-505. They are (from left to right): GM1/c Chester Mocarski; EM2/c William Riendeau; CMM George Jacobson; MOMM1/c Zenon Lukosius; SM3/c Gordon Hohne; BM2/c Wayne Pickles, Jr; RM2/c Stanley E. Woowiak; and TM2/c Arthur W. Knispel. (USNHHC)

By contrast, the focus of U-505 was simply returning from their war patrol alive. By spring 1944 returning alive defined mission success for U-boats. They had little chance of sinking enemy ships and no chance of sinking enough to win a German victory. Their remaining purpose was to tie down Allied forces, preventing them from being used offensively against the Reich. They could only do that if they survived.

By that measure Harald Lange's patrol had been successful from March 15 through June 4, 1944. U-505 slipped through TG 22.3's carefully laid June 2–3 surveillance net. The ultimate irony of its capture was the task group caught U-505 by accident. They were returning to port after an unsuccessful cruise, disappointed and critically low on fuel.

U-505's misfortunes cascaded from that point on. Had Lange been able to reach 200m he could likely have hid there, outwaiting the destroyer escorts despite low battery and air reserves. TG 22.3 lacked the endurance for a day-long search or the creeping attacks submarine hunting groups successfully used against deep-diving U-boats. Lange however could not know that.

Nor did it matter. Knox, aboard *Chatelain*, acting on his own initiative, made a prompt and effective pair of attacks on U-505. The first attack, with Hedgehogs, missed. The second, a depth-charge spread, literally struck oil. It badly rattled U-505, forcing it to the surface. U-505 had already reached a depth of 197ft and the charges were set to explode at between a 75ft and 150ft depth. Had Knox waited for orders to attack he would have been too late. As it was, the depth charges were perfectly placed to damage U-505 badly enough to force it to the surface, but not enough to sink it.

US good fortune and Nazi misfortune continued once U-505 surfaced. Three destroyer escorts fired on U-505 after it surfaced. They momentarily forgot their goal of capturing a submarine, firing everything they had, including a torpedo and 3in shells capable of sinking a U-boat. Only after they were reminded by Gallery to capture the submarine if possible did they restrict fire to their 40mm and 20mm guns.

Remarkably, despite firing 101 3in armor-piercing rounds, along with numerous 40mm, 1.1in, and 20mm rounds, there was only one hole in U-505's hull. It was caused by a 20mm round. Despite the ships reporting a total of six 3in hits, these rounds either missed or hit non-structural parts of the conning tower, such as the railings. Although four men of the U-boat's crew of 45 were injured, only one man was killed. That implies the firing was more effective in scaring the crew into quickly abandoning U-505 than in damaging the U-boat or killing crew. That was the desired outcome of the shooting, but not the originally intended outcome.

The Navy's good fortune continued in the form of Lange's indecision once

U-505 yielded a vast haul of documentary and hardware intelligence. Included in the take was this detection and radio equipment photographed on board U-505. The photograph was taken by salvage parties shortly after its capture by the US Navy. (USNHHC)

U-505 was committed to resurfacing. He committed neither to abandoning U-505 or fighting it out during its ascent to the surface. His indecision was understandable. This was his first long patrol as U-505's skipper. There had been no kills during it, and U-505 had failed to sink any ships in over 18 months. To simply abandon was a final admission of failure. Regardless, he forfeited an opportunity to organize scuttling and abandoning the vessel when he had undisturbed time to do so.

U-505 was prevented from sinking by only the narrowest of margins. At one point only its conning tower remained above water. Waves sent enough water into the boat through the conning that at one point it had to be sealed to keep the boat from getting flooded through the conning tower. (Author's Collection)

The subsequent loss of both Lange and Meyer immediately after surfacing left U-505 leaderless at a critical juncture. Second Watch Officer Kurt Brey took no positive action and Engineering Officer Josef Hauser simply abandoned his post and his responsibility to see the ship scuttled. The resulting disorganized abandonment offered the US a chance to capture a U-boat.

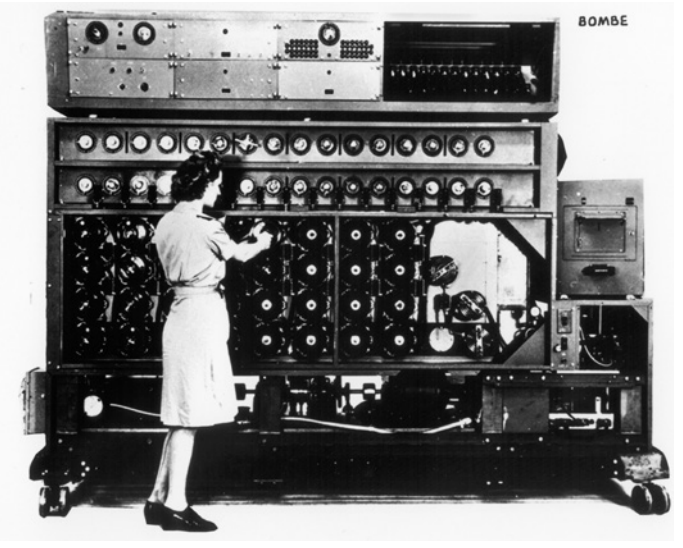
This is where surprise played a role. The German crew never expected an attempt to board their U-boat. Crews typically did not plan abandonment. It usually was not necessary to scuttle a damaged U-boat because they normally operated under neutral buoyancy. The real problem was viewed as keeping it afloat long enough for the entire crew to get out. Had U-505's crew an inkling the US intended to board and capture U-505 they would have paid greater attention to scuttling activities.

Furthermore, if TG 22.3 had not had boarding crews detailed and ready to go when U-505 had been abandoned, U-505 would have sunk before they arrived. Holdenried's and Goebeler's improvised scuttling efforts would have made keeping U-505 afloat impossible had *Pillsbury*'s boarding party arrived 15 minutes later than it did.

Luck played an important role in U-505's capture, but preparation and planning played an even greater role. Chance favored the prepared mind. Had TG 22.3 not been prepared to seize the opportunity offered, they would have missed it entirely.

Gallery believed the quality of U-505's crew contributed to its capture. He later wrote: "In my opinion, the man responsible for her capture was Cszhech [*sic*]. That crew should have been broken up and spread around among a dozen U-boats as soon as she came in from the cruise on which Cszhech ratted on his men by committing suicide." This seems an unfair assessment.

U-505 had been a hard-luck ship, but the cause was the damage it took when struck by a depth charge in 1942. Repairing the damage offered French workmen in Lorient plenty of scope to further sabotage the boat while in port. Zschech was disliked, but his crew was made up of long-term professionals with only a few weak links like Hauser or Ewald. Men among the crew showed initiative in attempting to carry out Lange's scuttle orders, when left leaderless.



A US Navy WAVE operates a decoding Bombe built for the United States Navy. They were used to reverse-engineer the daily cipher codes used by Enigma machines. The codes found aboard U-505 freed 13,000 hours of Bombe time from determining the U-boat codes. (Author's Collection)

Gallery's belief that the crew's morale was broken by Zschech was probably fueled by their behavior after capture. Their morale *was* broken, broken because U-505 had been captured. That was a humiliation that would have daunted any crew. They thought it was going to sink, but instead it fell into the possession of an enemy power.

U-505 yielded a tremendous intelligence haul. It gave the United States Navy an intact Type XIC U-boat and yielded both cryptographic information and hardware. Among the cryptologic information gleaned from U-505 were the Atlantic and Indian Ocean cipher keys for June 1942, the current grid-chart cipher, the "Reserve Short Signal" cipher, the "Reserve Bigram Tables" which went into effect on July 15, and the current "Short Weather" cipher.

The Atlantic and Indian Ocean cipher keys meant Navy intelligence did not need to use Bombes to determine the cipher keys for the rest of June. A Bombe was an electro-mechanical computer used to determine the daily Enigma cipher keys, the first step in decoding Enigma messages. Skipping this step saved thousands of hours of Bombe time. Instead, the Bombes were used to find cipher keys for the Kriegsmarine's Mediterranean code and Luftwaffe and Wehrmacht message codes.

The grid-chart cipher was used to report geographic position. Having it permitted Navy intelligence to correctly determine all locations sent in U-boat messages. It had been in use two years, and U-505's capture yielded the first physical specimen of the table. Similarly, the Short Weather cipher yielded keys to determine positions of U-boats broadcasting weather reports.

The Reserve Short Signal cipher gave the Allies the settings for tactical signals from U-boats and Kriegsmarine surface ships. The bigram table gave the internal setting for messages each day. Intelligence had reconstructed the bigram table in use since July 1943, but would have spent potentially thousands of hours reconstructing the new one without the information taken from U-505.

The Allies had been reading German signal traffic before Gallery captured U-505, but its capture allowed the Allies to read more quickly, more accurately, with fewer indecipherables and across a broader spectrum of communications. Having the Atlantic and Indian Ocean cipher keys made an extra 13,000 hours of Bombe time available in June, which in turn allowed much more Luftwaffe and Wehrmacht traffic to be decoded. The Allies invaded Northern France in June and the extra signal intelligence gleaned helped that effort; an indirect but valuable dividend of U-505's capture.

Other intelligence was gained by the raid. The latest models of German torpedoes were captured, including three acoustic torpedoes. Analysis of

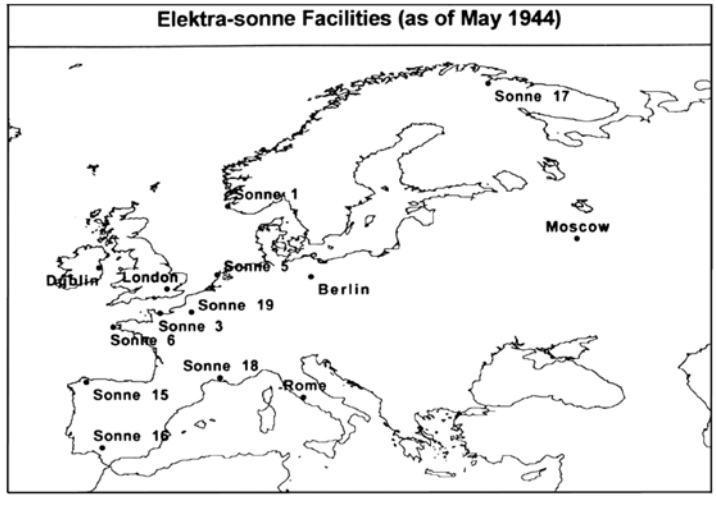
these revealed deficiencies in the foxer devices used by the Allies to lure these destroyer killers away from their prey. Changes were made which made *Zaunkonig* almost completely ineffective against a prepared opponent.

A description of *Kurier*, a super-high-speed radio transmitter was found in U-505's papers. This permitted a seven-character burst to be sent in half a second. The short transmission speed made it difficult to intercept a message so it could be decoded or to conduct radio direction finding. Instructions for and a description of *Elektra-Sonne*, a new radio navigation system, were also found. (It was so good Coastal Command began using it and it was used postwar for radio navigation.)

Was even this haul worth the risk posed to signal intelligence had the Germans learned of U-505's capture? As a one-off, the answer was probably that it was. It would have taken Germany time to replace the Enigma machines. They would have had to develop a replacement, test it, and manufacture replacement machines for the tens of thousands in use. The process would have taken a year or more. Until the machines were replaced the best the German military could do was change the keys, but by 1944 Britain and the US had hundreds of Bombes that could have found those keys through analysis. By June 1944 the Third Reich had less than a year of existence remaining.

The law of diminishing returns sets in if the capture were repeated. There would be no similar massive intelligence haul if another U-boat were taken and an equal risk of detection. The secret of U-505's capture came perilously close to being compromised several times. Had it been taken to Dakar or Casablanca, the Germans would soon have learned of it. Admiral Low later reported King was so furious at the threat the capture posed to the Ultra secret he wanted Gallery court-martialed. However, King's default setting was fury – one of King's six daughters said of her father, "He is the most even-tempered person in the United States Navy. He is always in a rage."

But did it really happen? Gallery was one of King's pre-war protégés. King's own Tenth Fleet staff had known of Gallery's plans prior to TG 22.3's departure from Norfolk and assisted Gallery. The court-martial story emerged after Gallery's participation in the Revolt of the Admirals, but it's a really good story, too good not to relate. It appeared at a convenient time, when Gallery's post-war detractors were trying to depict him as a publicity hound. If it actually happened, why did King approve Gallery to command an Essex-class aircraft carrier in the spring of 1945? King did not forgive and forget. Perhaps he did speak words to that effect after learning of the threat to the Ultra secret, only to ignore them afterwards, once he considered the matter.



Elektra-Sonne was a new radio navigation system used by Nazi Germany. Information aboard U-505 allowed the Allies to learn how it operated. This map shows the locations of active *Elektra-Sonne* stations in May 1944, just before U-505's capture. (Author's Collection)

CONCLUSION

The secret of U-505's capture was maintained until May 16, 1945. Thereafter the publicity floodgates fell open. The families of U-505's crew learned the men whom they were mourning as dead were still alive. They were repatriated in December 1945, arriving in a devastated Germany where they picked up their lives.

This included Felix Ewald who returned to the Soviet Zone. He began corresponding with Earl Trosino, who urged him to emigrate to the US. Gallery wrote a letter recommending Ewald, and both Gallery and Trosino offered to get Ewald a job. Instead, in 1948, Ewald moved to Poland to help on his parents' farm. He eventually made it back to West Germany, but never moved to America.

U-505 was sent on its bond tour. The story of its capture appeared in the August 5, 1945, issue of *Saturday Evening Post* under the title, "We Captured a Submarine." It was written by Daniel Gallery.

Gallery wrote the first draft of the article in the immediate aftermath of the capture. He had the best sea story of his career and could not tell anyone so worked out his frustration by committing the story to paper (probably while on assignment in Washington after relinquishing his command of *Guadalcanal* in August 1944). He later got permission to declassify the account and the Navy was pleased at the publicity. The article launched Gallery a second career as an author. He went on to write numerous articles, short stories, and eight books, several best-sellers.

Gallery's career, contrary to legend, was not blighted by capturing U-505. He was assigned to be captain of Essex-class carrier *Hancock* in June 1945, taking command in September 1945 just too late to finally join the war in the Pacific. He was promoted to rear admiral in 1946. His career ran aground during the "Revolt of the Admirals" when he opposed Secretary of Defense Louis Johnson's plan to scrap the carrier fleet and merge the Marine Corps with the Army. His public criticism cost him his third star, but Gallery never regretted his actions.

Following the war's end, U-505 began a new career as an exhibit. While it eventually arrived at Chicago's Museum of Science and Industry (where it remains on display to this day), it served as an exhibit even before then. Here it is in October 1945, with surrendered German destroyer T-35, at Annapolis, Maryland, during the US Naval Academy's centennial exhibition. The "U-505" on its conning tower is ahistorical, added after the war. (USNHHC)

With the war over, the Navy lost interest in U-505. In 1947, the Navy destroyed ten U-boats awarded to it following Germany's surrender. These had to be destroyed by treaty. The Navy planned to include U-505, but Gallery, who could sea-lawyer with the best, convinced the Navy to save his trophy. As a prize it was exempt from the treaty requiring surrendered submarines to be destroyed. He would save U-505 several times after that, knowing how to muster public opinion behind the submarine when necessary.

Finally he convinced the Navy to donate U-505 to Chicago's Museum of Science and Industry. The prime movers in getting U-505 to Chicago were Daniel Gallery and his brother John, a Catholic priest in Chicago at the time. It required a massive, successful fundraising effort, and arrived in 1954. Earl Trosino served as an honorary skipper for the final part of the voyage.

U-505 has been on display there ever since. Several restorations followed and today it is very nearly in the condition it was in when it sailed from Brest in March 1944. It became an anomalous exhibit, a source of pride to the US Navy that captured it. It also became a source of pride for the Kriegsmarine's surviving submariners.

For many years it was the only museum U-boat in existence. It became a focus for U-505 and TG 22.3 reunions into the 1990s. Some, like Hans Goebeler, moved to Chicago after retirement to be near the submarine. He became friends with Zenon B. Lukosius, the man who forestalled Goebeler's effort to sink U-505 by replacing the sea strainer cover, and the men often gave tours of the boat. It remains a memento of one of the oddest raids of World War II.

BIBLIOGRAPHY AND FURTHER READING

There is no lack of sources on the capture of U-505. It was one of the most written-about events of its size of World War II. What is difficult is coming up with sources independent of those originating with Daniel Gallery which are accurate. This is not to accuse Gallery of inaccuracy. Given his limitations (most notably ignorance of the Enigma secret) and within the context of his times he is remarkably reliable. However, no author should rely on just one source – it is like plotting your position without a cross-reference. The problem is complicated because several grossly inaccurate books on the capture were published in the 1980s.

Fortunately a new set of histories started coming out in the late 1990s, and have continued appearing through the present. These included accounts by German participants, including those aboard U-505 when captured. Memoirs are tricky. They are usually reliable within the scope of what the memorialist actually did, but are limited by assumptions made about events outside the authors' immediate experience. Yet, the two sets of memoirs offered the cross-check I needed.

I was also fortunate in finding a website containing facsimiles of the official reports of the US Navy participants. This was at http://www.uboatarchive.net/U-505.htm. These formed an invaluable part of the record I used for the raid section of this document and another cross-reference to Gallery's widely available accounts. I also recommend https://uboat.net/ for background information on U-boats and the fight against them.

I also used Clay Blair and Samuel Eliot Morison for general background about the raid. Blair had a useful summary of the intelligence gleaned from the raid, but the pair disagreed on the value of the action. Blair disapproved, while Morison felt it was within the best traditions of the service. Both were

World War II veterans, with Morison belonging to Gallery's generation. For those seeking further I can wholeheartedly recommend the books listed below, especially the accounts of the participants. Books available online (generally at https://archive.org/) are marked with an asterisk.

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Captain Daniel Gallery poses on the bridge of U-505, a proud victor. The US flag flies over a German flag on an improvised mast, a traditional sign of a captured ship. *Guadalcanal* crew members painted the name "Can-Do, Junior" on the front of the bridge. (USNHHC)

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Author's Dedication:
To Dave Richards: a great boss, a better friend, and an outstanding colleague.